DOCUMENT RESUME

ED 344 537 HE 025 451

AUTHOR	Jeffrey, Julie Roy, Ed.; Erickson, Glenn R., Ed.
TITLE	To Improve the Academy: Resources for Student, Faculty, and Institutional Development, 1985.
INSTITUTION	Professional and Organizational Network in Higher Education.
PUB DATE	Oct 85
NOTE	211p.; For other volumes in this series, see HE 025 452-454 and ED 325 062-063.
AVAILABLE FROM	New Forums Press, 219 E. Greenvale Ct., Stillwater, OK 74076 ($8.50 plus $1.50 postage and handling).
PUB TYPE	Books (010) -- Guides - Non-Classroom Use (055)
EDRS PRICE	MF01/PC09 Plus Postage.
DESCRIPTORS	Administration; Career Development; Case Studies; Classroom Environment; College Faculty; Critical Thinking; Educational Improvement; Educational Strategies; *Faculty Development; Grouping (Instructional Purposes); *Higher Education; *Instructional Improvement; *Organizational Development; Problem Solving; Reading Skills; Skill Development; *Teaching Methods; Thinking Skills; Writing Skills

ABSTRACT

This collection of papers, the fourth in an annual series, presents views of members of the Professional and Organizational Development Network in Higher Education on faculty, instructional, and institutional development. Papers and authors are as follows: "The Kahuna as Professional and Organizational Development Specialists" (Susanne Whitcomb and David Whitcomb); "Institutional Development: Impressions from Abroad" (Len Ainsworth and Einhard Rau); "Applying Japanese Management Techniques to American Higher Education" (Peter Seldin); "It's the Institution That Teaches" (George C. Helling and Barbara B. Helling); "Faculty Careers: Satisfactions and Discontents" (Mary Deane Sorcinelli); "A Theory of Effectiveness: Faculty Development Case Studies" (Ronald A. Smith and Fred S. Schwartz); "The Instructional Skills Workshop Program: An Inter-Institutional Approach" (Diane Morrison); "Critical Thinking in a Freshman Introductory Course: A Case Study" (Lynn L. Mortensen and Willis D. Moreland); "Improving Classroom Climate for Women: The Faculty Developer's Role" (Delivee L. Wright); "Faculty Exchanges as a Means of Renewal and Development" (Phyllis Zweig Chin); "Buyouts and a Career Transition Program as a Response to Retrenchment" (Carol A. Paul); "Learning in a Clinical Setting" (LuAnn Wilderson); "'It Ain't Necessarily So: Uncovering Some Assumptions About Learners and Lectures'" (Marilla D. Svinicki); "Academic Counseling Techniques" (Robert G. Piereleoni); "Teaching Students to Think: A Workshop Design" (Betty LaSere Erickson); "Small Groups in Large Classes" (Wendy Holmes); "Silk Purses" (Calvin B. Peters); "Group Problem-Solving Exercises: An Application in Economics" (Yngve Ramstad); "One Sentence Is Worth a Thousand: A Strategy for Improving Reading, Writing, and Thinking Skills" (Lois Cuddy); and "Techniques for Teaching Scientific Reasoning and Problem Solving" (James L. Fasching, Betty LaSere Erickson). References follow chapters. (GLR)

To Improve the Academy

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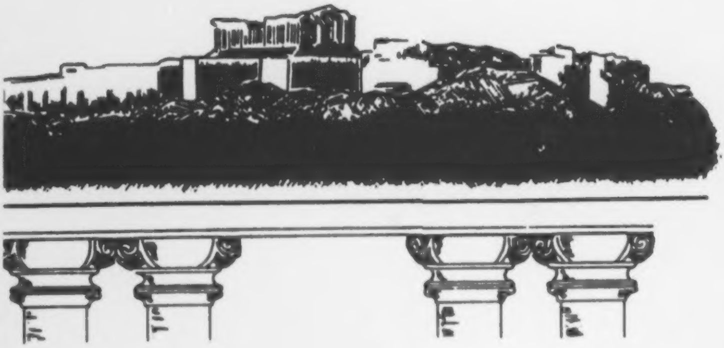

Resources for Student, Faculty, & Institutional Development

A Publication of the Professional & Organizational
Development Network in Higher Education
1985

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To Improve the Academy

Resources for Student, Faculty, & Institutional Development

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Published by
The Professional and Organizational Development (POD)
Network in Higher Education

FIRST PRINTING: October, 1985

Foreword

The Professional and Organizational Development (POD) Network in Higher Education was formed in 1975 by people who felt that they needed a network to support each other in efforts to make learning, teaching, and institutional life more effective and fulfilling. Since that time, we have gathered annually at a national conference to maintain the Network and to learn from each other about faculty, instructional, and institutional development. POD has also organized regional training workshops and established liaison with organizations such as the American Association for Higher Education.

This collection of readings is the fourth in an annual series to share the perspectives, reflections, and strategies of our members. Many of the essays have been developed from sessions presented at the annual POD conference. Others are included because they complement the themes and concerns of our membership. None are copyrighted.

You are encouraged to reproduce and use the materials included in this volume, particularly those which appear in Part III. That section contains short articles and handouts of the kind that we regularly share with one another on a limited basis to improve our programming, planning, workshops, and consultation. Adapt the materials as appropriate. Only be sure to give credit to the author(s) and keep up the process by letting the originator know of your experiences.

We thank all those who submitted articles to be considered for this volume and the authors whose pieces appear here. We appreciate the time the authors spent in revising their articles and the attention they paid to our deadlines.

If you are not already a member of POD, we invite you to join us. This small network is the best way to keep in touch with others who believe that work and learning will be enhanced when we collaborate to support each other. For information about membership and the annual conference scheduled each October, contact POD's 1985-1986 Executive Director: Bette LaSere Erickson, 201 Chafee, The University of Rhode Island, Kingston, RI 02881 (401/792-4293).

The Editors:

Julie Roy Jeffrey
Goucher College

Glenn R. Erickson
The University of Rhode Island

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PART I
INTRODUCTION

In previous volumes, we have tried to include one of the keynote addresses from the annual conference. We are pleased this year to continue that tradition with Susanne and David Whitcomb's article, "The Kahuna as Professional and Organizational Development Specialist." In their session and the essay based upon it, the Whitcombs encourage us to step outside our familiar world and to see what other cultures have to teach us about our surroundings. Their analysis of the ancient Kahuna provides both specific and general hints for those of us concerned with identifying important values in our universities and colleges and establishing humane practices in our work.

The essay by Ainsworth and Rau offers another perspective on American education, this time from the vantage point of Dr. Rau, a visitor from West Germany. As an outsider, Dr. Rau describes what he sees as unique and positive characteristics of our educational institutions. We may overlook, ignore, or undervalue the characteristics he suggests. But the comparison he draws between American and West German higher education highlights their importance at the same time that it raises fundamental questions about the purposes of higher education in each country.

Peter Seldin considers what Japan may have to offer American higher education. In his overview of Japanese management techniques, he argues that many can be applied to the American college and university setting. He also points to the ways in which the teacher and faculty developer can become more effective by borrowing from the Japanese experience.

Finally, the Hellings step outside the milieu of the small liberal arts college to pose some important questions. They ask us to consider whether our evaluation instruments do not actually promote uniformity when variety, contrast, and counterpoint lead to educational excitement and institutional effectiveness. Their essay makes the point that we do not have to immerse ourselves in a foreign culture in order to think creatively about our own.

The Kahuna as Professional and Organizational Development Specialists

Susanne and David Whitcomb
California State University, Long Beach

In this paper, we invite you to return to explore the ways of our professional development ancestors, for their processes were based on principles that are universal and therefore carry power to other cultures and times.

One New Year's Day, as our extended family was sharing hopes, dreams, and goals, a guest suggested that the Huna ways were similar to some values and practices we were seeking to develop in our work in the University. This remark started a journey of discovery to people, places, and materials that confirmed the initial hypothesis and opened the door to a steady flow of useful and applicable information. We developed a deep respect for the traditions and history of the Hawaiian Islands, and appreciation of the processes and power the kahunas trained themselves to use wisely.

The ancient kahunas of Hawaii, the Keepers of the Secret, were versatile mystics who were the professionals and the developers of professionals in their culture. They were experts in many fields, such as psychology, navigation, architecture, botany, geology, astronomy, healing arts, and spiritual arts. They believed both in power and in the right use of power, and the basic sin identified in the culture was to bring harm to another person. Many of the tales of black magic are said to be the result of "school drop-outs," those who learned enough to get a taste of power and then dropped out of the program before grounding themselves in the universal purpose of power. This evidence of human fraility or poor judgment is certainly not limited to this Polynesian culture. In the days when encounter groups were new and marathons did not refer to races, there were those, who, after attending a session, were amazed at the break-throughs observed, and without awareness of the skills needed to facilitate such groups successfully, set out to lead their own sessions, sometimes with very unfortunate results. There are no shortcuts to professional expertise in any culture.

The kahunas use several principles and practices that are applicable to the work of professional and organizational developers in higher education. First, they are disciplined and committed to rigorous and extensive training. They accept the necessity for wholeness, integrity, and singlemindedness of purpose as a part of professionalism. They develop all of their powers to an extent that surprises us, for we often do not expect much of ourselves. We do not realize our capacity to become more fully who we really are. The choice to undertake the kahuna training was not taken lightly, for it meant a lifelong total commitment to serving, and there was no space for other than total commitment. Wavering in purpose or loss of integrity had harsh consequences. The choice also meant a commitment to pass along the knowledge—the Secret—to the next generation, for the aged ones had the mandate to plant the seeds of power in the leaders of the future. This practice of generativity kept the Secret alive for the many years when it was outlawed. As a part of that spirit of generativity, some kahunas are now openly teaching the principles, seeing them as universal truths to be made available to those who are drawn to hear them.

Second, the kahunas know and use the power of words. The word is seen as an extension of the soul, and carries that soul's mana or vital force with it. Naming carries power. One's word or declaration carries power. How an object or person is described carries power. We are just now beginning to realize the extent to which this is true in our institutions. The university mission statement, the catalog copy, the public relations brochures, press coverage —all can shape the image of the organization for the faculty as well as the general public. An avalanche of criticism and negativity can create a self-fulfilling prophecy that makes concrete what was at first only words. Conversely, a powerful vision described in metaphor and articulated with hope can awaken and focus a group on positive actions and lead to achievements that confound the skeptics and doom-sayers. We have found that when people communicate across disciplines and department boundaries and articulate their values, the seeds of institutional pride and loyalty are planted and nourished.

Third, the kahunas know and use the power of visual imagery to bring about change. In the great Ha prayer rite, a very detailed visualization is sent to the High Self daily until vision is manifested as reality. This ritual of positive images is similar to more contemporary western methods of visual imagery used in a variety of creative problem solving approaches. In our culture, this power has been acknowledged by persons such as Maxwell Maltz (1969) and Eva Schindler-Rainman and Ron Lippitt in their "Images of Potentiality" exercise (Fox, Lippitt, & Schindler-Rainman, 1973). Ira Progoff, creator of the intensive journal process (1975), uses many guided meditations to help persons get in touch with the meaning and direction of their lives. His "Dialogue with Inner Wisdom" exercises enable participants in his workshops to tap into a very different mode of knowing than is ordinarily available, and to obtain guidance and clarification about areas of concern. Jean Houston, psychologist and Director of the Foundation for Mind Research in New York, describes an exercise called "Skill Rehearsal with a Master Teacher" (1982). Appended to this paper is an exercise which similarly provides an experience and a process for consciously gaining access to and using the inner wisdom we all possess. Detailed positive imaging is a useful tool of professional and organizational development practitioners.

Fourth, the kahunas know that mediation of conflict takes place at several levels, for, whatever the outward appearance, the healing must first occur in the spirit in a place outside of time. Ho'oponopono is a process that was developed by the early Polynesians for healing conflicts. Pukui, Haertig, and Lee (1972, p. 60) explain that ho'o means "to make, cause or bring about;" pono means "correct, right, in perfect order;" ponopono (reduplicate), means "in order, cared for, attended to." Both forms connote what is socially-morally approved and desirable. The process, then, is a means to bring about order in a family, restoring good relationships and attending to the needs and concerns of all members. If persons were found to be in conflict with another person in the immediate family, in the extended family, or in the tribal group, they were invited to participate in a group process to solve and heal the conflict. It was assumed that conflict had not only a psychological dimension but also spiritual and physical dimensions, and that all dimensions needed to be healed. If either of the protagonists had experienced illness or accident in the weeks preceding or during the outbreak of a conflict, this was assumed to be related to the conflict. It was also assumed that any solution or healing of the conflict would bring about spiritual, physical, and psychological changes for the better.

In the Hawaiian culture, the cohesion and group movement toward solution is provided by the commonly held value system. What have we in higher education to serve us similarly when we meet conflict? There are value traditions held by most people in higher education, and these may provide such a foundation if indeed they are embraced by the persons involved.

Universities are beginning to realize that just as the most successful companies are clear about their corporate culture and values, (Peters & Waterman, 1982) so, too, must universities search for clarity and consensus before excellence can be attained. Some colleges and universities are not attempting to clarify their institutional cultures by studying the values which seem to be embraced. California State University, Long Beach, is relatively new as a university. Only 35 years old, it currently has over 32,000 students enrolled. Much of the energy has gone into handling this rapid growth, and there are few traditions and no strong image or sense of strong shared values. Recently, the University has become involved in an eight-campus consortium called "The Values Study," sponsored by a grant through the Society for Values in Higher Education. One phase of this study, a values inventory, involved interviews with over 80 faculty, administrators, and staff to try to clarify value issues, values which are seen as in a state of erosion, and the mirage values which are talked about but have no substance. The notes and numerous quotations from these interviews were summarized, with eight categories of concern about values emerging from the data. A steering committee focused on one of these categories: clarifying institutional identity. The quotations from the interviews yielded 315 metaphors, and their analysis became a useful tool in getting persons to talk about the institutional image. The University is now involved in a process to identify the core values of the institution. These will form the basis of a restatement of the mission and goals of the University and of various instructional units.

The fifth principle and practice relates to the kahunas' knowledge that there is a source of wisdom and power in each of us which can be a natural part of our everyday lives. Many other cultures also speak to us of this source of inner wisdom, hidden yet accessible, mystical yet practical, gentle yet powerful. This wisdom is variously called: the collective unconscious, the still small voice, the muse, the Holy Spirit. Egyptians referred to it as Horus, the sacred falcon—symbol of the Creative Principle, who sits on your shoulder, cradles you with compassionate wings and whispers Divine Truth into your ear.

The kahuna sees humans as having three souls or aspects—a Low Self, Middle Self, and High Self. The High Self is similar to the superconscious and is composed of both a male and female essence. The Middle Self is logical, sometimes cynical, influenced by guilt and doubt. The Low Self is emotional, visually oriented, similar to the subconscious. These selves or spirits are called kino (body) and aka (shadowy). Aka has several meanings including "the essense of anything, in the spiritual rather than material form." It also can mean a shadow, and, in a sense, a living person's spirit (Pukui, Haertig, & Lee, 1972, p. 10). It has the additional meaning "of being a luminous extension away from the body" (Steiger, 1971). According to this reference, the two lower selves reside with the physical body, but the High Self does not. A cord made of aka connects the three selves, and they work as a team, using the body's supply of vital force, called mana, which also means spiritual power. When a person developed an illness, a conflict, or a problem that could not be solved, it was immediately assumed that there was a block in the cord that ran from the Low Self to the High Self, for the High Self was extremely powerful and could solve all problems unless its power was blocked. Thoughts are considered as real as things, and clusters of thoughts having to do with fear or guilt or negativity block the connection, the cord, to the High Self. Wrongs must be acknowledged and righted, forgiveness asked, reparation made, before power can flow to the High Self and problems be solved. The free flow of mana or power from the Low Self to the High Self was the key to the power used by the kahunas, as well as by any others who understood and used the process.

The conscious, rational, or Middle Self cannot tap into this power—only the subconscious, emotional, or Lower Self can do this. The request to be made in the great Ha prayer rite must be a clear picture, a detailed visualization of what is desired, and this is to be repeated each day until the results are satisfying.

An exercise used by kahuna Abraham Kauai'i starts with the visualization of oneself as an immense powerful mountain. A river of light and energy springs from the head and divides to cascade down one's arms as two rushing streams. Each breath taken creates more power and energy moving from the peak of the mountain down the course of the rivers. This energy is then directed to a need, a project, a hoped-for event, another person—calling forth completion, healing, accomplishment, materialization. The sense of Self as Mountain-of-Power is unforgetable.

The kahuna and the professional development practitioner, then, have come together from across cultural boundaries to celebrate common commitments:

—participation in the discipline of training
—respect for the power of words
—utilization of the power of visual imagery
—focus on mediation as mission
—identification of shared values as unifying forces
—reliance on inner wisdom
—commitment to passing on the Light—the new way to know and to be—to the next generation.

There is a song from another island which says:

We come from the mountain,
All of us, the mountain.
Go back to the mountain,
Turn the world around.

The kahuna says: "You are that mountain. Go back to your Self." Hawaiians say: "Nana i ke kumu. Look to the Source."

You have within you that Source.
Look to your Source.
Turn your world around.

APPENDIX

This guided imagery exercise, similar to those used by Jean Houston and Ira Progoff, assists persons in gaining access to and using the inner wisdom we all possess. It is sometimes not appropriate for those in therapy or counseling to go through this exercise unless it is used by the counselor as part of the healing process. Most people find the exercise a useful tool for personal growth. Tape recording the exercise allows for fuller participation.

Become very comfortable in your chair with a hand on each side of your lap. Just be aware of your breathing, in and out, relaxing. Now take a deep breath, hold it . . . . Then let it out and let your breathing return to normal. Once again take a deep breath and hold it (count off five seconds). Now let it out. Imagine that with each quiet breath there is a golden liquid which comes in at your feet. The characteristic of this golden liquid is that it relaxes and comforts you wherever it moves. It is coming into your feet, relaxing and comforting. With each inward breath the golden liquid moves higher up your calves, knees, and thighs, relaxing and comforting. The liquid moves into your hips, your pelvic area, your abdomen, relaxing and comforting. As you breathe, the liquid moves into your chest and back, into your shoulders and neck, and down your arms into your hands and fingers. The golden liquid moves to your head, into your chin, your cheeks, your mouth, nose, eyes, forehead, filling your head, your brain, your cranium, soothing and relaxing you.

See yourself walking along the beach on a beautiful sunny day. You look up the cliff side above the beach and see a cave up about fifteen feet. You walk up a path to this cave and find it to be spacious with a sandy floor. As you explore it, you discover an ancient metal door on the floor of the cave with a carved ring in the center. As you pull on the ring, the door swings up, revealing a staircase with ten steps going down into the earth. As you begin to walk down these steps you find that with each step you are more relaxed, peaceful, and yet expectant. One-two-three-four-five. You are calm, more relaxed. Six-seven-eight-nine-ten. At the foot of the stairs is a short hall leading to a massive door with a carved wooden sign that says "Room of Inner Wisdom." You walk eagerly toward the door and know that when you open it you will find someone within —a wise and compassionate person—who is expecting your visit. In a moment you will enter this room and spend some time in dialogue with this person. There may be surprises. The person may be serious or comic. It may be someone who is new to you. It may be someone from history, or a divine or mythological figure. The questions you ask will be responded to as you talk together. Go now and open the door and meet this guide. The few minutes of clock time will be all the time you need. (Take four or five minutes, timed.)

Now it is time to leave this place where you have contacted your Guide to Inner Wisdom. Say goodby and leave the room, knowing you can return whenever you choose. Go back up the ten steps, feeling energy and joy as you enter the cave and close the door. Go out of the cave and down the path to the beach, noticing the sunlight on the sea, the calls of the birds, the sound of the waves. You are also noticing a new awareness of your connection to your own source of inner wisdom. You are wide awake and full of vitality and power. Now become aware of this room and the people in it.

You will find it increasingly easy to have access to inner wisdom, and as you practice and learn to trust the process, you will not need an elaborate procedure for getting to it.

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Institutional Development: Impressions From Abroad

Len Ainsworth
Texas Tech University

Einhard Rau
Frei Universitat Berlin

(A chance discussion between the collaborators on the occasion of Dr. Rau's visit to Texas Tech University in 1982 stimulated this article. It maintains the first person style of the German observer, even though the American counterpart has integrated additional material.)

Higher education research has pointed out that the roots of the American system of higher education lie in the European, or, more directly, in the British and German traditions of tertiary education. Since the first quarter of our century, however, American higher education has experienced independent development and enormous growth. Today it is the most influential higher education and research system (Ben-David & Zloczower, 1980).

For some years I have followed trends in higher education in the Federal Republic of Germany (F.R.G.) as well as the debate on reforms in higher education in other western countries, especially in the United States of America. This interest exposed me to some of the enormous literature on the American higher education system and led to reflections on the status, dynamics, and problems of the American system, its dimension, variety, and diversity. I imagined a lively, boundless, excellent system which could serve as a model for higher education systems in industrialized western countries.

That doesn't mean that I, as a foreign observer, am uncritical about the limits, restrictions, and disturbances of the American system which numerous studies and reports document. I considered them, but, in general, they did not destroy my overall positive picture, perhaps bearing out the old adage that "the grass looks always greener on the other side of the fence." A Fulbright grant in 1982 provided an opportunity for me to travel for six weeks through the United States and to visit in ten universities in seven states, to talk to scholars and administrators, and to get useful insights into the American system of higher education and institutional and professional development.

I realized at once that it is next to impossible—at least unwise—after only six weeks 'on location' for me to claim to offer a valid description of the American system of higher education, even if I had a relatively sound theoretical background. During my visit I saw some of the more famous institutions (University of Michigan, University of Wisconsin-Madison, University of Chicago, UCLA, Berkeley), and they strongly influenced my perceptions even though I knew they comprised only a minority of institutions. But less famous institutions confirmed most of my perceptions. Soon it became obvious that American higher education has not only "three thousand futures," as noted by a recent publication (Carnegie Council on Policy Studies in Higher Education, 1980), but nearly as many "presents," and even quite a number of "pasts," making it impossible to analyze and describe the system as a whole.

Still, it seems useful to sketch some impressions. Of course, impressions are often contingent and provisional. They are not systematic and do not immediately lead to valuable insights and practical results. But they are not useless! Naive amazement at existing situations can throw a new light on these situations for those who are familiar with them, even if the conclusions are wrong or incomplete. It is not my intention here to provide new insights about American institutions of higher education but rather to stress some issues which are perhaps trivial for some American observers but have innovative implications for other systems of higher education.

Not too long ago, Germans interested in educational reform looked at the Swedish system, and the Swedish grass looked greener too (Premfors, 1982). But after I started to look at the "American university" (Parsons & Platt, 1973) and the higher education system in general, I became more and more interested and fascinated by strands I recognized on the western side of the Atlantic. My focus is only comparative, not systematic, analytical, empirical, or theoretically elaborated. My purpose is rather to describe, from a distance, impressions of the higher education system in the United States, to portray conditions which seem unique and to draw some obvious comparisons to education in the F.R.G. Americans who look critically and somewhat fatalistically at their own system will discover that their grass is as green (or perhaps as withered) as it is in other places.

SIZE AND DIVERSITY

Looking from abroad at the American system of higher education, one is impressed—at least at first glance—by the great number of students in the system. In contrast to the approximately eleven million students enrolled in about 3,000 institutions of higher education in the U.S. in 1978-79, the F.R.G. had about one million students in 328 institutions in 1979. With about three and a half times the population of the F.R.G., the U.S. has eleven times the number of students and ten times the number of institutions. It is even more instructive to look at demographic characteristics. The proportion of people between the age of 18 and 24 who take part in some kind of tertiary education in the U.S. is now more than 40%, the F.R.G. about 20%.

What are the reasons for these impressive differences?

Has the U.S. really reached a higher level of equal educational opportunity? There are enormous difficulties associated with answering such questions, and they cannot be decided here. But there are hints found in the differences between the two systems. First, it seems important to consider that the area of the U.S. is 38 times that of the F.R.G., with obvious consequences, at least regarding the number of institutions. Regional educational needs promote large numbers of colleges and universities.

Even more important is the distinct structure of the two systems. Besides the fact that there are no private institutions of higher education in the F.R.G. (a first private university started some activities in 1982!), it is worth mentioning that American institutional variety has no counterpart in the Federal Republic. In the United States, about one-fifth of the students attend a private college or university. This, perhaps, has some implications for the need and level of funding support from public coffers.

Since the early 1960's, German students have paid no tuition in the F.R.G., although in times of retrenchment there are considerations of reintroduction of a tuition system. Financial aid is given to students from lower social strata (about 33% of all students). But many students must work as well as study. In 1979, 31% stated that they had to get a job to finance their living while 58% said that they sometimes worked to earn some money. Regarding job opportunities, I've gotten the impression that the American institutions of higher education, perhaps because of their 'commercialization', provide better and more jobs on campus for their students than German institutions are able to do.

INSTITUTIONAL IDENTITY

In all the universities I visited, I found impressive student centers with large book stores, restaurants, and big shops; they sold everything from pencils and rubbergums to an enormous selection of clothing and useless things, all showing the name or the sign of the alma mater. I think that there lies more than only a crude commercial interest behind that, something valuable and unique. I've found that in sports activities, too. It shows a kind of identification with the institution which is not evident in the European counterparts.

An inspiring event in that respect was my attendance at a football game at the University of Michigan at Ann Arbor. I cannot imagine that such enthusiasm and involvement of all groups of the university—from freshmen to full professors—as well as of the surrounding community could be created in Germany. I know that many criticize the phenomenon—the football craze—in American higher education. Some almost angrily point to the differentiation of advancement in research, scholarly success, and athletic triumph. However, the representatives of the institution are involved, and, if the team wins, everybody seems to be proud. This identification obviously produces ties which very often last a whole lifetime and affect influential alumni. This relationship does not exist in German universities. Perhaps I'm wrong, but I think that the ties between the university and the surrounding community are much closer in the U.S., that the extracurricular activities in which all groups participate are much more important, and that the institution plays an important part in daily life beyond the formal and ordinary duties connected with studies, teaching, and research. These ties surely provide opportunities for faculty to become involved in and assist with professional development of individuals in many kinds of endeavors, and the faculty can take advantage of the opportunities for self development as well.

What creates this kind of identification which has deep ongoing consequences for the institution? Is it the respectable sum of tuition which has to be paid, an elitist approach, or the still existing scholarly spirit which we (Germans) may have already lost or think of as unsuitable in an egalitarian society? In some way, these and other components may play a part, and it is difficult to decide which is most important. In any case, on the surface, these have—I believe—constructive effects for the institution. Problems of vandalism, of isolation, and of too little cooperation are less relevant, or at least less visible, in the institutions I've seen. Perhaps it was the first view which provided a biased look; many academicians are concerned by the isolation and lack of involvement of fairly large numbers of individual students. Many of these academicians work to improve their teaching as a means of reducing that student isolation.

It is apparent that the institutions themselves have an interest in creating a stimulating, attractive climate and good surroundings in order to compete for students and their tuition money. But institutional variety is a result. And a great number of potential consumers constitute a continuing market. The resulting diversity leads to flexibility, creativity, freshness, and continuous innovation. It leads on the other side to differentiation and hierarchy, to elitism and obsolescence, to high and poor quality; in one word, to inequality! Does obvious inequality in support provide equality of opportunity?

An engaged German educational sociologist must be unsatisfied with such results! But aren't there positive consequences and results too? Yes, I believe so! It is well nigh undisputable that the market-oriented 'consumerism' and the diverse system of higher education have created widespread possibilities to teach, to study, and to do research in numerous subjects and fields, to earn degrees in different programs, colleges and schools. Conditions create a more varied student body with more heterogeneous motives and intentions than can be found in German universities. It produces an unbelievable number of courses and different educational accents—religious, cultural, ideological, and professional, among others.

PROGRAM STRUCTURE

Most obvious to an observer from abroad is the differentiation between undergraduate and graduate studies, a distinction which cannot be found to the same degree in the F.R.G. Studies at institutions of the university type in Germany mainly lead to two types of degrees: the diploma and the 'Staatsexamen' (government examination), the prerequisite for entering the civil service (including all teaching at primary and secondary schools, legal and medical professions). In addition, a close connection exists between the degree and the higher levels of the occupational system. That means that the diploma earned via the 'Staatsexamen' is a necessity for getting a high level job. A student who has failed to get the degree has received no formal benefit from his or her studies. The impossibility of stepping out or stopping studies after a certain period of time puts an enormous stress on many students. They fear failure and don't dare to try the examination. These fears cause them to stay in the institution too long and possibly to drop out in their early twenties without any formal qualifications. The relatively homogeneous and one-dimensional structure of the German higher education system implies other forms of inequality which the diversity of the American system avoids. The broad range of degrees in the U.S., as reflected in titles and programs, is tremendous to the external observer.

The lack of connection between degrees and jobs seems to make the American system and the people in it more open, more flexible, more individual and, in the long run, possibly more successful. Even if it is likely that a Harvard graduate will usually get a more influential, more prestigious first job than a graduate from, for example, Texas Tech University, relative mobility and flexibility characterize American higher education. I'm convinced of that, insofar as it opens up prospects for more equality and equal educational opportunity.

In another related aspect, the German system seems to be less rigid. In many fields of study, the German student is quite free to plan and design his or her study program, to choose lectures and courses of personal interest, and to decide when he or she feels fit to take the final exam. That's a remnant of the old ideal of academic freedom, to study in 'solitude and independence' ('Einsamkeit und Freiheit'). Even in today's mass university, it is still an influential—and I believe dysfunctional—concept. It often results in disorganized "programs," too lengthy a time of study, and high drop out rates. The American system, which often has distribution requirements, seems to draw more sensibly upon combined mature judgment than does a system of open course selection on the part of the students.

Even an existing counseling system does not guarantee good results. The lack of a well-designed curriculum in German institutions often leads to specialized training in a chosen field without real training for a vocation. This training still has to be done on the job (American readers will recognize that this criticism is also frequently levelled at American higher education). In comparison, the structuring of American undergraduate and graduate curricula seems to be more goal-oriented, to be based on more intensive motivation, and to lead to a more adequate involvement in the studies, the institution, and the future working perspective. It also places responsibilities on the faculty to meet a variety of needs.

I know that not all of these problems are solved in the United States, that new and different problems always arise. Otherwise institutions would not be living and lively organizations. Diversity stimulates experiments and produces solutions—good and bad. In any case, the problems are dealt with in various, competitive, innovative and comprehensive ways.

INDIVIDUAL FACULTY DEVELOPMENT

In the U.S., many institutions provide more organized assistance to individual faculty members than is the case in Germany. Support for individual scholarship and teaching improvement are most common. There are many conferences and printed or filmed materials available which relate to self-improvement in various ways. I understand that it takes individual initiative to pursue those, but the institutions seem to provide more assistance. Perhaps it is necessary, because of great distances, to expect more travel support for national meetings. But I also observed that individual institutions, and sometimes colleges within the universities, have organized programs for faculty development.

This atmosphere of collegial helpfulness seems aimed at individual improvement. Apparently, this is a developing trend and one which seems so useful that it would be expected to spread. This seems to be also a fertile field to grow improved methods of assistance.

RESEARCH

Depending upon one's orientation, the integration of research and teaching, or the conflicting time demands of the two, increasingly characterize the American university. This trend seems to be less well established in public colleges. In German institutions, the tradition of research institutes developed in a way not copied directly in the United States. Basic orientations of the European chair and the American departmental systems are found still in the current research operations. The relationship of ongoing research projects and activities to undergraduate teaching is more direct and pronounced in the U.S. system. The grafting of the German university to the root stock of the English college, which typically characterized American institutional development, has apparently produced a more prolific growth than has the continued careful tending of the institute approach in the F.R.G. The reforms in the German universities during the 1970's resulted in a number of changes, among them a shared voting strength among professoriat (including junior faculty) and students. The replacement of traditional faculty approaches, formerly headed by a chair or *Ordinarius*, has resulted in a system involving comprehensive sets of committees. This system needs further refinement before its research potential can be realized.

PROFESSIONAL RESEARCH AND DEVELOPMENT

Variety can also be found in higher education research. The quantity and quality of research on higher education conducted in the American universities, the many different and qualified journals specializing in higher education, and the centers for studies in higher education at so many institutions, providing the system with effectively trained, well educated and qualified administrative personnel, are really impressive. There is no such training in the F.R.G., even if there is a demand for qualified university administrators.

In many cases the German institutions of higher education are administered by jurists (sometimes by economists) who have a 'normal' education in their fields and only by chance ended in university administration. Even if they do a good job, there remains quite often a kind of discrepancy and tension between 'academe' and 'accounting.' It is perhaps noteworthy that each institution is administered by a full-time manager who is responsible for the whole range of administrative affairs (Fallon, 1980). I have the (perhaps utopian) optimism that training and education in higher education will make future administrators more sensitive to the touchy problems of serving students and scholars in times of scarce resources for the benefit of the whole academic community.

German universities conduct little institutionalized higher education research. When university reform was in its affluent stage in the late 1960s and the early 1970s, there were quite a number of state funded institutes doing useful work outside the universities. Most still exist (with fewer personnel and less resources), but they did, and do today, mostly applied research and special studies for the state or federal government. Only a relatively small number of scholars from different fields carry on independent research. They have little cooperation or feedback, little money, and nearly no response from the scientific community or the affected public. Therefore, it isn't too strange that there is no specialized journal for higher education in the Federal Republic of Germany. Strange it is, however, in my opinion, that exactly the institution which defines its purpose as the search for knowledge produces only very little about itself and does not promote such research.

This kind of concern contrasts with continuing and prominent debates about teaching and curriculum in the United States, wherein there are many efforts at discussing and solving actual problems and dealing with future ones. These efforts are conducted in a very pragmatic and goal-oriented way. Enormous amounts of literature are produced, and ingenious proposals are presented. But the relatively small impact of theoretically oriented contributions is striking. The interest in developing theories of higher education seems as insignificant as it is, for example, in Germany.

It is relatively easy to find some reasons for the prominence of research on higher education in the United States. Cause and effect seem closely connected. The variety and the dimensions of the system create numerous problems and generate manifold issues to be solved and managed. Efforts for teaching improvement in a single institution (Osterman, 1984) illustrate variety in that important area. The different fundamentals and prerequisites of higher education in the United States—organization, structure, admission, and financing, among others—and unique problems of the system—the rights and opportunities of minority groups, for example—necessarily stimulate the search for solutions. So far, solutions seem to be situational and time bound, but perhaps from these beginnings, models and theories will develop for testing.

Many of these issues exist in the F.R.G. too—but on a much smaller scale. We don't have and can't have the same variety in higher education. Thus, we often look in amazement at the American system, getting incentives from there and sometimes even believing that imitation should solve our problems. Undoubtedly, pure imitation would not help in successfully dealing with German problems. But the look at American higher education remains fascinating and, in a wider perspective, very helpful.

SUMMARY

At the end of these impressions of the American higher education system as they developed through direct perception, discussions, and the study of literature, it seems worthwhile to draw some brief conclusions. It is apparent that the situation in both the American and the German higher education systems is comparable, that both have had to deal with similar problems in the past, and will in the future.

Burton Clark (1982) has related the problems of higher education to four "basic values"—justice, competence, liberty, and loyalty. The contradictions of these values and efforts to act according to them (and their interpretations) constitute strong issues in higher education all around the world. Reconciliation of equality, ability, independence, and commitment seems unattainable but not unapproachable in the development of institutions.

The observation of efforts at institutional development in America have been mentioned. These efforts are understood to be inconsistent throughout the many institutions across the country. The movement toward individual development and, probably to a lesser extent, overall institutional development does seem to be growing and becoming more institutionalized. These attempts relate to both the teaching and research dimensions of the American schools. The variety within the system leads one to expect variety in the approaches to developmental activities. There are not as many, nor as varied, approaches in the F.R.G. at this time. As mentioned, there is often a lack of theoretical thinking evident in the studies of activities to improve the academy in both countries.

Efforts for reform and experimentation in higher education in both countries can be interpreted as a 'perpetual dream' (Grant & Riesman, 1978). Inducements and causes for the shaping of effective and adequate institutions of higher education are overall quite similar and are bound to similar values and intentions. Strong and direct attention to individual professional and institutional development must be continued if the dreams are to be realized.

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Applying Japanese Management Techniques to American Higher Education

Peter Seldin
Pace University

Japanese techniques for managing organizations have captured corporate America's attention in recent years and for good reason: the techniques seem to work. I am persuaded they can also work in our colleges and universities. The real secret of Japan's postwar economic success, according to Ouchi (1981), is effective management, especially in making personnel policy. Briefly, Japanese management devotes special attention to four areas: 1) fostering decision-making by consensus; 2) creating mutual trust between management and employees; 3) treating employees with respect and dignity; and 4) looking to the future. All four approaches have bearing on college and university management. Adapting them requires thought, sensitivity, and the capacity to absorb frustration, but ultimate success would be worth all the effort.

DECISION-MAKING BY CONSENSUS

Actually, decision-making by consensus is gaining favor in institutions of higher learning. Even if true consensus is not achieved, more people are involved in discussing problems whose resolution affects them. Budget committees consisting of administrators, faculty, and students function at many institutions. Curriculum improvement committees include many faculty members. Administrators are discovering that open communication not only clears the air but also acts to rally faculty, student, and alumni support. It produces better planning and sounder decisions. A growing number of institutions encourage open meetings where proposed cuts, personnel changes, financial priorities, and other campus issues are freely discussed.

Group decision-making sparks new ideas, brings collective experience and expertise together, heightens an understanding of a decision in the process of making it, and clothes the decision with acceptability because a respected group made it. The group must possess, of course, all the necessary facts to come up with the decision.

MUTUAL TRUST AND LOYALTY

Japanese management makes a point of trusting its employees, including supervisors and workers. Because management's trust is genuine, the employees respond with loyalty. Management is as conscious of employee concerns as the employees are of management's. The result is a bonding of management and employees.

How is the Japanese approach to be applied to colleges and universities? Today, on many campuses, trust and loyalty are in short supply. A stranger could be forgiven if he erroneously concluded that administrators and faculty are adversaries, as are departments and even faculty members in the same department. The challenge to college and university managements, therefore, is to gain mutual trust and loyalty. The road is rocky but not impassable.

RESPECT FOR EMPLOYEES

Japanese organizations traditionally treat all employees with respect and dignity. In American business and industry and in our colleges and universities, we lack this tradition. We operate more on the principle that the common good is an achievement of individualistic efforts. It is worth noting, however, that the need for respect and dignity in organizations has not gone completely unnoticed. It was cited by Peters and Waterman (1982) as characteristic of excellent, innovative organizations. In my view, colleges and universities stand to gain greater productivity and efficiency from administrators, faculty, clericals and other personnel when all employees are treated with respect and dignity. A word of caution: by respect and dignity is meant the real thing, not a catchword or slogan. All employees must be treated as partners in the common academic enterprise.

LOOKING TO THE FUTURE

How can colleges and universities adapt the Japanese concept of looking to the future? They might open discussions on what they expect to be in the next ten years, in the next twenty. They must recognize that today's glory will not endure unless it is steadily renewed. What kinds of problems might they face in the future? How can they be anticipated and dealt with? Looking to the future, many colleges and universities are engaged in sizeable fund-raising programs. Yet, the building of war chests in itself is no guarantee. Fund-raising must be in harmony with a vision of the institution in the future. Breneman (1983) suggests that some of the key questions to be answered are:

1. Is the institution's present planning adequate for the future?

2. What effect would a ten or fifteen percent enrollment decline over the next five years have on costs and revenues?

3. Should the institution seek to attract new client groups to maintain enrollment?

4. Are there alternative uses for campus buildings (including dormitories)?

5. How can surplus physical assets be converted into revenue producers?

Until now, I have approached the problem of adapting Japanese management techniques to American colleges and universities broadly. Do these techniques apply on a smaller scale to the classroom? To the professor? To the students? Do the techniques have implications for faculty developers?

Again, a word of caution. We assume at our peril that the Japanese have the answer to the problems of institutions in the U.S. What works well in one culture is not necessarily transferable to another. But to study the Japanese success is to suggest that its postulates can be reshaped to meet our needs.

Examples of ideas holding promise include: 1) using quality circles in the classroom; 2) developing an extensive induction program for new professors; 3) moving to less specialized faculty careers.

USING QUALITY CIRCLES IN THE CLASSROOM

Applied for more than twenty years in Japanese industry, the quality circle is a way to improve job performance by stimulating employees to suggest their ideas on job improvement in their own specific fields. The idea is to get employees to think critically and seriously about their jobs and job relationships. They also show employees that management really cares about their suggestions. The circle, consisting usually of eight to ten employees, spends its time discussing the improvement of the product or the workplace. In an industrial setting, a facilitator organizes and leads the group.

Can quality circles be adapted to our colleges and universities? Kogut (1984) says yes. He reports that such circles have already been successfully introduced in several undergraduate courses in general chemistry and Asian history at The Pennsylvania State University.

Before a quality circle is created in a classroom, the function of the circle must be discussed with the students. Student volunteers are then recruited to attend weekly meetings over the semester. At Penn State, the professor serves as facilitator.

The circle zeros in on what takes place in the classroom, the teaching and the learning, and how each can be improved. No relevant classroom issue is off limits for discussion, although the professor retains the right to determine grades and academic standards.

Kogut found that his students offered valuable suggestions which helped him to fine-tune his instruction. The suggestions ranged from depositing a copy of his lecture notes in the library to ways to make more effective use of the blackboard. But he also stumbled into several problems. Overcoming initial student anxiety was one. Another was inducing enough students to volunteer for the circle. He also discovered the key importance of the facilitator for the group's effectiveness. He often needed the wisdom of Solomon and the patience of Job.

Faculty developers have a key role to play. They can help individual faculty members learn the required techniques of an effective group facilitator. They can teach professors how to develop the supportive climate necessary to replace the anxiety of students in the circle with trust and candor. They can help faculty learn how to develop a discussion and not dominate it. They can work with them on team-building and effective group process.

SYSTEMATIC ORIENTATION OF NEW PROFESSORS

Another facet of Japanese management readily adaptable to colleges and universities is the carefully organized orientation of new employees. They receive a thorough grounding in the product or service sold by the company. By the time they complete their orientation, they really know the formal and informal procedures to be followed in their daily work. Career developers employed by the company conduct the orientation sessions.

Professors newly hired by colleges and universities can benefit from a similar orientation program. Such a program's focus can be on enhancing interest in teaching and effectiveness in the classroom. Eble (1972) suggests the following items as essential in the induction of new professors: 1) communicating in tangible ways the school's interest in teaching; 2) explaining and clarifying the reward system; 3) discussing in specific terms how to gain knowledge and skill in classroom instruction; 4) acquainting the novitiates with their own and other departments and colleges; 5) taking steps to offset any academic experience which threatens the development of a teacher; 6) providing relevant and factual information about the student body; 7) describing the resources available in the audio-visual center.

Faculty developers should be especially well equipped to handle the orientation of new professors. They enjoy an advantageous position due to their background and knowledge. They can enlist the aid of gifted teachers to talk about the teaching craft and share classroom experiences. They can impart important information about special teaching opportunities, teaching supports, and awards. They can also be helpful in career guidance.

While a few colleges and universities offer organized orientation sessions to new professors, the number is small. Even fewer are the follow-up discussions with new teachers a few months later. For all practical purposes, they are left to learn as best they can.

NONSPECIALIZED CAREERS

Another adaptable approach by Japanese management is an emphasis on a nonspecialized career. The Japanese executive deliberately avoids specializing in one area of company business, such as sales or finance, but moves regularly from one department to another. The result is an intimate understanding of the inner workings of the entire business enterprise. This approach runs counter to traditional academic demands for the high order of expertise that comes only from specialization. But it suggests an avenue worthy of serious discussion and careful experimentation if only to avoid the not uncommon problems of debilitating faculty stress and burnout. Indeed, what can be done to maintain the commitment and effectiveness of teachers?

First, provision might be made at colleges and universities to discuss with midcareer teachers what they have been doing and to consider change. Several institutions have accomplished this by adopting a 4-1-4 calendar plan which permits new teaching contexts. Others, such as the University of California at Berkeley, transfer faculty members for a limited time from one department to another. A few institutions appoint "university" professors whose primary identification is not with any specialized department but with the broader at-large role of teacher and educator. This freshening of a teaching role and career can benefit the university, the teacher, and the students.

Second, the number of exchange programs might be stepped up. One-year exchanges of teaching assignments by professors in community colleges and universities could be encouraged. Urban and rural colleges could work exchanges to their mutual benefit.

Third, faculty members could be offered more opportunities for administrative experience. In colleges and universities, large numbers of administrative offices—admissions, financial aid, bursar, registrar, residence facilities, buildings and grounds, food service, among others—offer such experience. In addition, there are staff positions in the offices of deans and the vice president for academic affairs. A one-year administrative assignment for faculty members on a rotating basis could provide professors with a useful and broadening experience, and it could scarcely disrupt the institution. At the same time, it could have the added benefit of increasing the value of that faculty member to the institution.

Who should serve as the liaison in coordinating such programs? Faculty developers are in an excellent position to do so. They can serve as valuable clearinghouses of information as they work to help faculty members to improve their performance in the classroom. That performance is quite likely to improve following a year spent teaching at another institution or acting as an administrator. The experience, for some professors, will spell the difference between being bored and burned out and being alive and exciting in the classroom.

Clearly, there are benefits awaiting colleges and universities that adapt some of the Japanese management techniques to academic use. What is needed now is careful analysis, discussion, and implementation. There will perhaps be more than occasional frustration, but the end product could be well worth the effort.

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It's the Institution That Teaches

George C. Helling and Barbara B. Helling
St. Olaf College

Parents' Day at St. Olaf College is like Parent's Day at any number of small colleges. School has been in session about a month. The leaves on the maples are starting to turn. In the distance, one can hear the pep band warming up for the football game, while in lounge or classroom, parents of freshmen and teachers of freshmen stand about holding coffee cups and making awkward conversation. Awkward, because they tend to talk past each other. Teachers try to keep the conversation light, offering general information about their courses. They don't know their freshmen well yet. The parents are more serious, more specific. They want to know, "How is Karen doing?" "Is Paul working as he should in your class?" "Does David seem happy, interested? Has he told you any of his own ideas?" Unexpressed, at a deeper level is implied, "Did we make the right choice? Is this the right place for our son or daughter? As a teacher, do you represent what we looked for, what we hoped for when this choice was made?"

We begin with a reminder of this familiar scene in which we have all participated, many of us both as parents and as faculty members, to get us thinking of the wholistic kind of judgment parents cannot escape. They must in some way assess what Warren Bryan Martin calls the "character" of a college.

Though the questions parents ask seem somehow both too broad and too personal to be answered readily, they are not superficial. They are, in fact, the appropriate questions to be asked by the person from outside, the "consumer" who is faced with the decision of "which college"? If one is attempting to compare one college as a unit with another in order to know where one can purchase the best education, one must know the overall effect of the college on the student.

From inside, however—from the dean's point of view, for example—there is little time to ponder such questions. Faced with urgent decisions about salary, retention, tenure, and promotion, an administrator must give first priority to the questions about how well individuals are doing their jobs, who is good, and who is not. The task of managing a college leads the dean and his or her supporting staff to seek clear and unambiguous measures of teaching performance. And, as the dean is likely to say, one "needs all the help one can get."

To give not proof but illustration, Peter Seldin conducted a workshop on faculty evaluation on our campus last fall. His work represents a well-founded moderate position on evaluation of teaching. Both of the two main substantive sections of the workshop, on colleague evaluation and student evaluation of teaching, began with a series of statements about teaching and its evaluation which, after some discussion, Seldin identified as either true or false "based on literally thousands of studies." He then suggested the means he had found to be most useful and reliable for rating faculty, endorsing instruments such as student evaluation forms which, he said, though not accurate enough to permit fine discriminations, do an excellent job of separating out the clearly superior and the clearly inferior from the large cluster of teachers in the middle. Our dean found this approach most helpful and had no trouble with such words as "inferior" and "superior" even though they ignore the different contributions made by different teachers and line them up according to a set of standardized criteria. The implication of this choice of question is significant, for no matter how thorough the research, how reliable the results, viewed through the calibrated lens of a standard method of measurement, teaching by one teacher is seen to differ from another only in degree and not in kind. Without intending it, this makes invisible to the evaluator the variety, contrast, and counterpoint that make the human experience of getting an education different from the programming of a computer.

Last year George had a very nice experience. A young woman graduate introduced him to her fiance as "the best teacher I ever had." That helped him to forget, but obviously he cannot completely forget, the student evaluation form he also received. Down the page it was marked with the lowest rating on every item, and, at the bottom, the student had written: "This has got to be the worst course in the history of the college." The history of the college! Was he that bad? Or was he as good as that lovely and obviously intelligent young woman seemed to think?

Faculty members like to entertain one another by sharing "paradoxes" like this that come from the experience of teaching. Here are some more.

A very able scientist we know tells this story about how he learned the intricacies of advanced chemistry in graduate school. "This teacher gave us problems to solve; but he was so terrible in class, no one could make heads or tails of what he told us about solving them. So, we students had to get together and work out the answers ourselves. He was the worst teacher I ever had, . . ."; then, in the same breath, ". . . but I never worked so hard, and I have never forgotten how to do those problems."

Or the student who answered the question, "What is the best learning experience you have had so far?" by saying, "This summer I worked in a canning factory."

Bart Starr said of the teaching effectiveness of his coach, Vince Lombardi, "He knew who needed sugar and who needed salt."

Finally, there was old Art Paulson, teacher of creative writing. Gullible? Students said so. "Oh, you can B.S. in your papers for him. Just say anything you want, and he will find all kinds of great stuff in there. He will call you in, and tell you you have great potential." How they laughed!—All those sophisticated students who knew that the effective method of getting grades was to find out exactly what the teacher wanted and give it to him. But "simple" Art Paulson gave them the permission and the confidence to try to say in their writing what they wanted to say and, in the process, unlocked creative potential.

If we were preachers, we would choose for our scripture lesson for educators a verse from Psalm 37: "The steps of a good man are ordered by the Lord and he delighteth in his way. Though he fall he shall not be utterly cast down for the Lord upholdeth him with his hand." We like it, not only because it anticipates by two and a half millenia an emphasis on positive reinforcement—that is, a Lord who delighteth in the way of a good man, and no doubt shows it—but because of the paradoxical line, "Though he (the student) fall he shall not be utterly cast down." Part of what students learn must be learned by falling. Sometimes students need criticism, though they rarely like it. The "fall" may bring about a bruise from bumping up against subjects that violate preconceptions or jolt them out of complacency by making them stretch efforts and methods of study. All of these harsh experiences may be important in learning, but falling does not result in learning if students are utterly cast down. The falls must be turned into positive outcomes in the context of a larger environment of stimulation and support.

In George's subject, sociology, students come to class for the first time already "knowing" answers. After all, they have lived in society for eighteen years. The task of the first teacher is, therefore, to open them up by creating some doubts. He or she sticks out a foot, and they trip over it. The next teacher has the gratifying assignment of picking them up again, providing closure—and in the process garnering high ratings from impressed and grateful students.

This gives us a clue, we think, to resolving the paradoxes.

They are only paradoxes to those who, like administrators, perceive the college experience as an accumulation of classes and who assume in consequence that a class with a teacher qualified in his or her subject and measurably popular with students is a unit. Enough of these make an education.

On the contrary, it is the combination of experiences in the institution as a whole that teaches. College is an environment, not a log with a teacher at one end and a student at the other. It is the different, interactive, contrapuntal ways that challenge and support are provided that meet the growing, changing needs of the student. It is the juxtaposition or alternation of expert authority and student initiative, of success and striving, of answers and questions which result in education. In fact, it is the whole institutional experience (including "bad" experiences) in classes, in dormitories, in athletics, leading and following, performing and watching, working and relaxing. Everything counts.

Complex organizations are not just aggregates of similar units but combinations of different ones like living organisms with a division of labor among the necessary parts—heart, kidneys, lungs, brain. And it is complex organizations that do the work of the world today. Hospitals cure the sick, manufacturing plants make airplanes and airlines fly them—and colleges, not individual teachers, teach the young.

What difference would it make at our colleges if we believed and consciously worked from the idea that it is the whole institution that teaches? Certainly, we would look more carefully at the sequence of experiences that we provide. We might plan a program of slowly increasing difficulty which brings high school students—which is what entering freshmen are—gradually into the kind of experiences appropriate for college students, rather than throwing them in to sink or swim. The role of advisor, in which we are beginning to see educational meanings that go beyond planning a schedule and seeing that requirements are met, would become even more to be the student's advocate in fulfilling the broader purposes of his or her education, not only sound preparation for a vocation but also for a high quality of life.

We would recognize as part of education the various aspects of campus life—the activities that go on, or don't go on, in dormitories, for example, and the importance of designing those buildings and activities to relate to academic experience. We would plan extracurricular activities as opportunities to express, practice, and test what is being encountered in classes. Teachers would have more reason to communicate about the students themselves, to share information about their abilities as well as what and in what manner they are being taught. Sequenced courses within the same department and in related disciplines would become the rule rather than continuing the assumption that what we do in our own classes is our own business.

Turning attention from the student to the institution, such a conviction about the teaching institution would bring more effective integration throughout the organization. The administration and members of the faculty would have to take one another more seriously, and shared efforts could diminish stereotypes: administrators might not regard faculty as absent-minded inhabitants of an ivory tower, nor would faculty regard administrators as adversaries or unconcerned with the process of teaching. Such functions as admissions, coaching, and teaching would cooperate to enhance the education of the student athlete who is now often vulnerable to conflicting points of view among them. We would be aware of the educational role of secretaries and clerical personnel, some of whom spend as much time in direct contact with students as do some faculty.

Believing that the institution teaches has implications for administrative policy. Clearly, expectations for the teacher would go beyong the classroom. Teachers teach by their presence at social gatherings, on ceremonial occasions, and as audience for student performance. They should be encountered in a variety of settings, to be available to students for more than questions about content, assignments, or tests. Such criteria, therefore, would play a part in the hiring process. It would become important to examine not only the candidate's preparation in his or her content area but in the style and skills of teaching he or she brings. Criteria for a particular position might include the level of difficulty at which the person works best or the particular kind of teaching objectives espoused. We would ask about philosophy of education, not to achieve uniformity but to complement and extend the teaching resources of the institution.

We say optimistically that these things could happen. Of course, people would have to make them happen—but the whole academic community would have more reason to do so.

Implementation could begin now in two ways. First, an evaluation system that recognizes that there are many kinds of good teaching and that students need to encounter a wide range. They need to be helped through material that is difficult; they also need to deal with difficult material by themselves. They need to be disciplined to follow a line of information or reasoning out to the end; they also need to learn to explore, to experiment, to reject an implied conclusion in order to arrive at their own. They need to learn to work with ideas and to play with ideas, to listen with serious and focused attention, and to think for themselves. They need generous praise and serious criticism. No one teacher can combine all of these, probably not even both aspects of any one pair. So, we can make sure that the evaluation system allows people to show their strengths rather than expecting all to conform to one standard.

Secondly, departmental planning could include these aspects of teaching, following guidelines similar to those we already use in making decisions about curriculum content and who will teach it. Just as a department now agrees on different content areas to be taught, it could agree on its needs in terms of teaching style or function, saying: "We must provide within the department supportive teachers and demanding teachers, recruiters and socializers, information-givers and listeners." Particular individual preferences, styles, and areas of content specialty, would play their part in deciding who is doing what and what else needs to be done.

Beyond these immediate steps are larger questions of strategy and structure for which we will need research on the long-term effect of different experiences on the learning of students and the nature of the interactions between those experiences. What kind of experiences cause students to grow and broaden? What disillusions and what inspires? How much failure is necessary to success? How important is it that a student be happy about what and how he or she is learning? The more we learn about the relationships between the various elements in this complex, four-year journey, the more effectively we can plan and design institutions for total educational effect.

It is not our objective to press for particular outcomes but rather to raise the basic questions of orientation. We contend that the focus of higher education should be on the many-faceted experience that makes up a student's college career. Development of a whole organization for education is the key, and successful organizations, from orchestras to manufacturing plants, provide models from which colleges may selectively borrow. Winning teams in professional sports are a particularly interesting place to look, for competition clearly shows which teams are superior. Two winning strategies in football will illustrate. Bo Schembechler of Michigan maps out a plan of attack and defense, and then his recruiters go out and find just those individual players to make it work. Bill Walsh of the San Francisco Forty Niners develops a plan of attack and defense around those players he has available. Both strategies require comprehensive planning and a different kind of excellence at every position. So does education.

PART II
INTRODUCTION

Those of us who work in professional and organizational development in higher education must respond to a broad range of constituencies and concerns in a variety of ways. The papers in this section reflect some of that diversity of interests and strategies.

Mary Deane Sorcinelli asked Indiana University faculty about their professional satisfactions and frustrations. Their responses were predictably heterogeneous and suggest that we must continue to diversify if we want our programs to seem pertinent to more than a small minority of our faculties.

Ron Smith and Fred Schwartz remind us that we spend much of our time consulting with individuals and advise us to keep track of the relationship between our underlying assumptions and theories about effective practice and how we actually interact with others. They note how easily we fall into incongruity between what we do and what we believe should be done and suggest that such inconsistencies reduce our effectiveness.

Skilled people are needed if our faculty members are to be offered effective instructional improvement services. Recruiting and paying specialists can be difficult, especially for institutions too small to support full time instructional development consultants. Diane Morrison describes a relatively inexpensive program for recruiting and cooperatively training regular teaching staff as resident consultants and trainers.

Lynn Mortensen and Willis Moreland offer an example of the kind of substantial instructional redesign project that many of us must help out with occasionally. Their case study reminds us of the challenges and the potential of such efforts. Delivee Wright's paper also deals with change, but more in faculty attitudes and behaviors toward women and men than in the substance of what is taught.

The idea of getting away to a new place with new people for a few months or a year has probably intrigued most of us at times. Phyllis Chin describes the faculty exchange she arranged for herself and introduces the National Faculty Exchange for those interested in getting help for similar arrangements for themselves or others. Finally, Carol Paul reports on the buyout program her university developed in response to the need to reduce the size of its faculty. The kinds of help offered by professional development people to those who chose to leave is of particular interest.

Faculty Careers: Satisfactions and Discontents

Mary Deane Sorcinelli
Indiana University

In recent years, there has been increasing interest in academic careers. Attention has focused on how and why faculty choose such a career, how they first see the career, and how their needs and interests change over time (Baldwin & Blackburn, 1981; Entrikin & Everett, 1981; Rice, 1984; Stumpf & Rabinowitz, 1981). Others have focused on the institution's role in shaping career attitudes and behaviors. Given limited resources, declining enrollments, and lowered faculty mobility, how do institutional policies encourage or impede professional growth? (Baldwin, Brakeman, Edgerton, Hagberg, & Mahar, 1981; Corcoran & Clark, 1984; Furniss, 1981; Lovett, 1984). Still others have speculated about the effects on faculty careers of such social trends as changing student demographics, shifting academic interests, questions about the value of a liberal arts education, and forces of the marketplace (Mortimar et al., 1984).

The findings in these studies suggest that individual faculty interests, institutional expectations and policies, and a variety of broader social trends interact and influence the ways in which faculty define and pursue their careers. It seems likely that faculty will be more satisfied with their careers when these forces are in harmony and less satisfied when they are in conflict. Thus, efforts to understand or to enhance academic careers must acknowledge the full range of individual, institutional, and social influences and must make room for faculty to express satisfactions or concerns in these areas.

Guided by these assumptions, Indiana University's Dean of Faculties Office initiated a study to investigate its faculty's perceptions of their careers. How do professors define their interests and responsibilities? What do they find satisfying? What are their discontents? What would they like to change? The following pages describe the methodology used to conduct the study, report some recurring themes in professors' discussions of their satisfactions and concerns, and offer recommendations for enhancing faculty careers.

METHODOLOGY

A sample of 112 faculty was randomly selected from four of Indiana University's academic units: one department in the humanities, one in the natural sciences, and two professional schools. The sample was stratified by academic rank and sex.

Information was collected through in-depth interviews followed by administration of a questionnaire. The interview, which required one to three hours to complete, was designed to permit faculty to express perceptions and feelings about aspects of academic and/or nonacademic life. An interview guide (Appendix), consisting of ten open-ended questions, provided an entrée to discussion of academic careers but put a minimum of restraint on how faculty responded.

Procedures for collecting and analyzing interview data were suggested by qualitative methods of interview interpretation (Guba & Lincoln, 1981; Wolf, 1979) and included: (1) tape recording and extensive note-taking during each interview; (2) sorting a sample of interviews for issues, concerns, and factual information; (3) conceptualizing a model that visually represents major issues and concerns; (4) designating the coding unit as the entire interview due to the free-flow nature of responses offered to questions (and, in many cases, to unasked questions); (5) formulating alternative response categories for content analysis of the interviews; (6) testing the coding instrument for inter-coder agreement; (7) transcribing extensive quotations and examples from the tapes in order to maintain the integrity of each interview against the threat of abstraction.

After each interview, the faculty member completed a questionnaire which sought additional information about work and life away from work. The questionnaire included items suggested by studies of careers (Baldwin, 1979; Blackburn & Havinghurst, 1979; Kanter, 1977; Sarason, 1977) and by studies of work and non-work satisfaction (Near, Rice, & Hunt, 1980; Near, Smith, Rice, & Hunt, 1983).

DISCUSSION OF FINDINGS

Although questionnaire data are still being analyzed, the information provided by faculty during the interviews touched a broad range of topics, was rich in detail, and revealed the complexities in academic lives. Nonetheless, some issues emerged as recurring themes during the analysis of interview data; these themes will be used to provide the focus and organizational framework for discussing the study's preliminary findings.

The discussion of findings begins by examining faculty perceptions of their academic responsibilities and strengths. The sections which follow report sources of faculty satisfaction and frustration. The discussion of findings concludes with a summary of the recommendations faculty offered during the interviews.

Faculty Perceptions of Their Academic Responsibilities and Strengths

Many of the satisfactions and frustrations which faculty reported reflected the extent to which the individual's definitions of career roles, responsibilities, and strengths matched the institution's definitions—or, faculty perceptions of the institution's definitions. Thus, before identifying the sources of faculty satisfaction and discontent, some attention must be given to these definitions and perceptions.

On the surface, all appeared to be harmonious. Most faculty said their interests and responsibilities included research, teaching, and service. Indiana University characterizes itself as an institution with a tradition of excellence in research, states that teaching is equally important and complementary to scholarship, and expresses a commitment to service.

Beneath the surface, things were not that simple. Although all faculty talked about research, teaching, and service, most expressed a primary interest in one of the three roles. Nearly half of those interviewed rated research as their greatest strength. About a third named teaching as a primary strength. Less than a fifth identified service as a major interest or strength, but there were some faculty for whom it was most important. An institution equally committed to research, teaching, and service would find it hard to please all of its faculty all of the time.

A closer look also revealed that faculty did not perceive the institution to be equally committed to research, teaching, and service. Several faculty thought the institution valued and rewarded research more than teaching. Indeed, some believed that substantial investments in teaching inhibited opportunity, reward, and recognition: "Sometimes the phrase, 'He's a good teacher,' is used as a euphemism for 'He's not a publisher or scholar or researcher.' That's unfortunate, but it's clearly the atmosphere in which you function." Few faculty believed that the institution valued service. Except for administration, service was seen as a way to close the door on career advancement. Not surprisingly, those most interested in research felt this was as it should be; those most interested in teaching found it a major source of frustration; those most interested in service seemed resigned to look elsewhere for recognition and reward.

At the same time, a university committed to research, teaching, and service—in whatever combination of priorities—is likely to please all of its faculty some of the time. Thus, each of the faculty members interviewed found satisfaction in some domain.

Sources of Satisfaction

Many faculty identified a "non-work" feature—the location of the university—as a source of satisfaction. They liked living in a small and attractive southern Indiana town. For some, the location served as a major incentive to stay at the university. Several faculty with families mentioned that it was "a nice place to bring up children." Others said the semi-rural atmosphere and the convenience of travelling from home to office to community made it a pleasant setting in which to pursue a career. Although some faculty—especially those who were single or who came from urban areas—found the town parochial and longed for the sophistication and pleasures of cities, more faculty delighted in the conveniences and security of small town life.

The ambience of the university was also important. The intellectual life of the campus and the national prominence of individual faculty, departments, and schools were attractive. As one person observed, "I enjoy being involved in a campus that has some strength of tradition behind it. There is something solid about this place that, because of my experience elsewhere, I appreciate very much."

Institutional support for professional activities was also a major source of satisfaction. However, the particular supports identified varied considerably and probably reflected individual career interests. Approximately a third of those interviewed named institutional resources that supported their scholarly activities. For some, recent enlargement of classroom and research facilities better adapted to new technologies had improved the physical environment. Others appreciated internal grant money and research services. "I've already benefited from grants-in-aid, summer fellowships, and research development programs." Some faculty identified supports for teaching: possibilities for interdisciplinary teaching, assignments to honors or graduate seminars, course development grants, and resources for teaching improvement. As one faculty member reflected, "There are more perks for teaching."

Finally, opportunities to pursue activities which interested them were a source of faculty satisfaction. However, given the differences in strengths and interests, individuals appreciated different kinds of opportunities.

Those primarily invested in research focused on opportunities for scholarly activities. Generating and working with knowledge provided "a sense of progress of the mind." Some found the "positive atmosphere for scholarship" helpful; it enhanced their abilities to secure professional awards, outside funding, and other job offers. "I feel like I'm constantly progressing. I get invited to lots of meetings, I'm on grant panels, and I feel I could get a job almost anywhere. That's a very optimistic feeling that a lot of academics don't have." Others talked about how respect from colleagues, status, and advancement in the department and in the university had risen with their ability to attract grants, fellowships, or generate scholarly publications. One professor concluded, "That's a kind of reward . . . how you feel your colleagues perceive you."

Opportunities to pursue teaching activities were also mentioned as sources of satisfactions, although the rewards were often less tangible. For some, the intellectual challenge of transmitting knowledge and experiences gave a sense of accomplishment: "In my field, the lifetime of a research paper is short. Turn out a student who knows how to think, and you've offered society 50 years of a thinking person. What is more lasting?" For others, working with graduate students was most satisfying: "I've had a lot of excellent students who have become leaders in the discipline. It's been stimulating to interact with them in their professional careers. Here, my teaching and research are so closely meshed that it's difficult to tell where graduate education leaves off and research begins."

Although fewer faculty spoke about opportunities for service, those who did found it a major source of satisfaction. They mentioned working for the needs of minority students, for state agencies, for professional organizations; they found that these opportunities provided outlets for creativity, leadership, and action that were not always available in research or teaching activities: "I feel as if I'm in a position to make a difference. My service affords avenues for impact." Administrative service carried some added benefits: "There is no doubt I had better increments than I would have had if I continued as a professor." Others mentioned "writing articles that stem from service activities" or "getting additional income from consulting."

In sum, all faculty interviewed found something in their lives which they could name as a source of satisfaction. However, the particular satisfactions varied considerably with differences in individual interests in teaching, research, and service. Thus, any efforts to use faculty reports of "career satisfaction" as a basis for determining what might increase morale will need to reflect these differences. It seems unlikely that any single support or opportunity will be universally or equally appreciated.

Sources of Concern

The same differences in interests were reflected in faculty discussions of their frustrations. Time, money, and, to a lesser degree, governance were sources of frustration for many faculty. Here, however, the tensions between research, teaching, service, and life outside the university came into sharper focus.

"Finding enough time to do my work" emerged as one of the most pressing concerns of faculty. Almost half those interviewed mentioned the problem of not enough time for research. As one professor explained, "I love the research, and I'm jealous of time taken from it. The most frustrating thing is the lack of blocks of time to concentrate. A lot of times, you can't really get to the heart of something until you've thought about it for two or three hours." A related concern was the lack of adequate support services—clerical help, computer support, released time, research assistants—which faculty felt might ease the strain: "Scholars in this place waste their time in laboratories and libraries, doing things like reading proofs or monitoring equipment, when they really should have a research assistant."

Faculty's efforts to find enough time also heightened the conflicts created by multiple responsibilities and surfaced some resentments toward institutional demands. Some felt that required teaching loads, administrative activities, and service were a "tremendous drain" on time needed for research: "I don't dislike teaching, but it takes a lot of time. The university requires us to spend our time teaching undergraduates and then rewards research. You can't do everything well and be very honest about it." Others, who might have preferred more time for teaching or service, resented the institution's emphasis on research: "My classes and evaluations would be better if I felt that was how I should spend the bulk of my time. I could probably figure out how to teach them or get help. But what should you spend time doing when you've got tenure hanging over you? Not doing much on teaching doesn't hurt."

Trying to balance time also created tensions between work and non-work responsibilities that faculty in nontraditional households seemed to feel most keenly. One of the single parents interviewed attributed the deferral of a sabbatical and publications to the responsibilities of raising a child: "When my promotion didn't go through, I kind of expected someone to criticize my spending time being a parent." Another respondent with primary responsibility for young children in a commuter marriage reflected: "My career has taken a lot of deflections for family reasons over the last few years. If I had to take a chairmanship somewhere in order to be at a place where she could do something . . . well, we'd like to live together. I would not say, 'No, that will interfere with my career research plans'." These faculty wished the university would be more flexible in work assignments, hiring policies, the granting of leaves, and sabbaticals.

In the end, "not enough time" was a concern of nearly everyone. A junior faculty member viewed tenure as "a clock that's always ticking, even as we sit here talking." A colleague nearing retirement lamented, "I just have so many things that I'd like to do. In fact, I've got two or three books in mind. My fear is running out of time." Another explained, "The toughest thing is to do a good job with a career that could consume all available time, pay attention to a spouse and children, publish or perish, teach well, lead an examined life, and keep out of debt."

While time was a universal frustration, money for salary and resources was, for many, the most serious problem. One faculty member cautioned, "I think the study will fail to direct attention to the fundamental problem. The fundamental problem is money." Well over half the faculty members interviewed perceived present salary levels and the ways in which salaries were determined to be inadequate, and over three-fourths expressed concern over declining resources.

In their discussions of salaries, faculty were quick to acknowledge that financial reward is not the reason anyone pursues an academic career. Nonetheless, faculty were very concerned about low salaries: "I think we're going to lose younger people because our salaries are so very low. You can't get good people that way, and you can't keep good people." Moreover, faculty worried about attracting good graduate students: "We can't compete unless we have a terrific faculty and money to offer graduate students to come here. Now, what we've done over the past years is build a terrific faculty here, but unless we do the latter, we're not going to succeed." Finally, faculty were concerned about their families: "You start thinking about what college your kids will go to, about dollars and cents, and your responsibility as a parent. You have to say, 'What does this mean to my family?'"

Faced with inadequate salaries, some were forced to supplement their incomes. Some increased their salaries through summer teaching or outside consulting, but viewed such activities as distractions from research and deterrents to career advancement. Although "fishing for outside offers" was another way to increase one's salary, nearly half the respondents felt this strategy had produced an uneven distribution of rewards within and among departments, had strained collegiality, and had lowered morale. And, some of those interviewed had found it necessary, but nonetheless distracting, to take on administrative responsibilities in order to supplement their incomes: "The institution can assist in the development of my career by giving me a high enough salary so I don't have to take on an administrative position to be able to make ends meet. I'd rather be doing my research and writing, but only by becoming a chair will I be able to get a competitive salary."

While some faculty were worried about making financial ends meet, others were concerned about more subtle pressures that could be traced to a shortage of funds. For example, some felt the competition for research support had taken on an unsavory character. They suspected that their departments and the university responded most favorably to highly visible publications and marketable research. They charged that this emphasis on the popular and the lucrative had led to "a pursuit of laurels rather than excellence" and that it pitted the "popularizer" against the "specialist," the "star performer" against the "yeoman-like worker," the basic against the applied researcher, and the "faddish" against the more traditional. These faculty wished that, instead of catering to narrowing avenues for outside funding, the university would set aside more internal funds for research. "There needs to be a few dollars available for that interim financing of research, when a person has a good idea and no other way to get it on the lab bench or out of the library books." Another respondent explained, "The funding agencies are becoming less creative and supportive. It would be nice to think that there was some way on campus to compete for a substantial source of funds at a critical point in your career."

The shortage of funds also created additional pressures in teaching: "I suppose my greatest contribution is as a teacher. I put a lot of effort into teaching, and I try to make my courses not simply appealing to students but rigorous. But this semester, I had over 600 students, which is crazy." More than a third of the faculty indicated such problems as large classes, heavy teaching responsibilities, not enough help with grading, a shortage of materials, and inadequate classroom facilities.

Perhaps the most disturbing insight gleaned from faculty members' discussions of salaries and other forms of financial support was that competition for funds had created conflicts between research and teaching. To most faculty, the distribution of university funds represented a tangible symbol of what was expected, valued, and esteemed. It was clear to most of these faculty that teaching was not the way to promote one's career. Those with strong commitments to teaching, including several who had received distinguished teaching awards, confided that they were among the "lower paid professors in the department." While incentives for research might be reflected in the salary base, good teaching more often received "a plaque or one-shot cash reward." Further, because teaching and service do not bring widespread recognition, faculty who invested heavily in their teaching found it more difficult to secure the "outside offer." One respondent confessed, "If I knew how to go about getting these offers, I might consider playing the game. But again, it's not why we, theoretically, are professors." In one of the more candid descriptions of the conflict, a professor explained, "If someone said, 'You will be rewarded if you develop courses and work hard with undergraduates,' I would do it in the best of all worlds. But in the real world, I will continue to stress research and publishing. And that's really not selfish because, like most people, I support a family. That's the hidden side of careerism. It's not as individual a pursuit as some make it out to be." Although teaching was not as high a priority as research for many faculty interviewed, these comments suggest that teaching might receive greater attention if the reward structure were different.

Administrative leadership was a third area of faculty concern. Most faculty expressed relief that they did not have to make the difficult financial decisions confronting the university and sympathy for administrators who did.

Nonetheless, about a third of those interviewed felt that an increasing distance between the faculty and the administration had hindered the work of both: "One thing they could do for career development is to maintain and improve the quality and vitality of the university. The administration lacks the understanding of what it means to be a professor. They have no real understanding of scholarship or teaching."

Others criticized the administration for failing to articulate forcefully a clear mission for the university. One proposed, "We never say, 'In the last ten years, Stanford has taken the number one ranking from Harvard, and in the next ten years, we want to take it from Stanford.' We just don't have that push for excellence." Another suggested, "We are a state university, not a Stanford or Harvard; we're not in that league. We can talk about a great research university, but our primary responsibility is to undergraduate teaching. We have not made that an issue when we talk about the excellence of this university." Yet another urged, "We need a structure which rewards and encourages not only highly specialized research and teaching, but also synthesis and cooperation, innovation, and risk-taking. We need to send clear signals that success means something besides a Guggenheim." Although faculty differed in their notions about the content of a university mission statement, several felt the university needed some strong statement which would harness imagination and direct efforts toward common goals.

In sum, faculty concerns surfaced around three issues. Competing demands left them with inadequate time to pursue avenues of greatest interest and difficulties in balancing time at work and away from work. Inadequate financial support created frustrations in several forms: low salaries and noncompetitive stipends for graduate students threatened to undermine the university's ability to attract good people; insufficient support for research diminished scholarly productivity; insufficient support for teaching placed increasingly unreasonable demands on faculty; and competition for limited funds produced a variety of subtle and insidious tensions. Finally, while dissatisfaction with administrative leadership was not expressed as frequently, two issues were registered often enough to be noted. First, administrators seemed not to understand the pressures in faculty lives. Secondly, the administration had failed to issue a clear and forceful statement about the university's mission.

Recommendations

As faculty discussed their satisfactions and frustrations during the interviews, they often suggested ways the university might encourage and support their work. Their recommendations are summarized below.

Released time. Faculty at every academic rank recommended that the university seek ways to provide released time at different stages of academic careers—a "sabbatical summer" or a "research semester" for junior faculty to complete research prior to tenure, for mid-career faculty to acquire new skills or pursue new research directions, for senior faculty to write a synthetic piece. Similar arrangements were suggested, albeit less frequently, to enable faculty to develop teaching skills or service projects, to take short-term assignments or internships in administration, or to develop new courses and curricula. Many faculty suggested that released time—from time to time in one's career—would ease pressures and increase productivity.

Internal research grants. Because external funding had diminished, faculty recommended the university increase its internal funding of research activities. Most were interested in relatively small grants to cover costs of xeroxing, typing, travel, postage. Some, however, stressed the need for a few substantial grants to support important, but less "marketable" research.

Leaves and sabbaticals. Faculty felt that traditional policies governing leaves of absence and sabbaticals were too restrictive. They pointed out that temporary work in industry, business, government, or other institutions might be more attractive and more feasible if there were options for longer leaves and sabbaticals without jeopardizing salaries or promotions. At the same time, "mini-sabbaticals" taken at more frequent intervals during a career might better suit the needs of some faculty. Increasingly, flexibility was needed. Faculty also suggested that advice on moving, finances, and other practical matters would be helpful.

Retirement options. Senior faculty urged more flexible retirement options. Some spoke for more incentives to retire early and make room for young faculty "with enthusiasm, freshness, and new perspective." Others wished for opportunities to research, teach, or somehow contribute to the university after they reached 70. One professor compared his university career to a marriage, explaining that his investment in the institution had been so great that it would be difficult to break the ties. Similar sentiments prompted another to suggest a central office where retired faculty could meet, serve as research mentors to other faculty, or work with administrators to solve institutional problems.

Opportunities for spouses. Dual career families found the university's location and isolation a major problem, because spouses were unable to find suitable work. Several faculty urged that the university become more sensitive and more assertive in addressing these problems by adopting more flexible hiring policies, by providing counseling, and by advertising local talents to surrounding areas.

Evaluation of faculty. Given differences in the ways faculty defined their responsibilities and interests, it's not surprising that they wanted changes in the criteria governing reappointment, tenure, and promotion. However, there was no consensus on how the current system should be changed. Some sought more uniform policies and procedures, more precise guidelines for dossier preparation, more systematic evaluations of teaching, and more continuous assessment of faculty after tenure. Others argued that current practices do not respect differences among academic disciplines or the extraordinary variation across colleges and schools. They urged more flexible criteria to reward traditional academic activities (research contributions, outstanding teaching) and to encourage an expansion of activities (research outside one's academic specialty, creative projects). Some acknowledged an unresolved dilemma. They saw a need for consistent policies, so that faculty would be treated equally, but they wished for more flexible policies that rewarded and encouraged different talents and interests.

Colleague support. Several faculty found support from colleagues sustaining and invigorating. They urged more active and public attempts to identify volunteers willing to read a manuscript, to review a grant proposal, to visit a classroom. Some suggested the creation of more formal arrangements—mentoring systems or networks—which cut across disciplines and supported a variety of research and teaching activities.

Recognition. To be sure, faculty wished the university would recognize and reward their achievements through salary increases. However, a surprising number of faculty longed for less tangible recognition. Junior faculty confided that they felt "totally invisible" to the people making decisions about them, and it made them uneasy. Senior faculty reminisced about days when the university was smaller and they received notes of recognition whenever they published books or received awards. Now, they observed, professors might enjoy regional or national acclaim but receive no local acknowledgement. Faculty seemed to be asking that someone—colleagues, administrators—pay attention to individuals, notice their achievements, and congratulate them.

CONCLUSION

This study was undertaken as a first step in the search for ways Indiana University's Dean of Faculties Office might encourage and support faculty in their careers. A stratified random sample of 112 faculty were surveyed through in-depth interviews and a written questionnaire. Analysis of interview data revealed several recurring themes in faculty perceptions of their career responsibilities, in their satisfactions and frustrations, and in their recommendations for change.

Most faculty defined research, teaching, and service as primary professional responsibilities. However, they expressed preferences for one or another of these responsibilities. Moreover, these different preferences were reflected in individual discussions of satisfactions, concerns, and recommendations.

For example, most faculty mentioned institutional support for and opportunities to pursue professional interests as sources of satisfaction. However, the particular supports and opportunities discussed varied considerably with individuals' different interests in research, teaching, and service.

Similarly, not enough time, insufficient financial support, and concerns about administrative leadership were identified as major concerns. However, those primarily interested in research felt that teaching and service took too much time, were distressed about inadequate supports for research, and urged the administration to pursue its research mission more forcefully and energetically. Those interested in teaching resented the pressure they felt to spend more time on research at the expense of teaching, were frustrated by the absence of rewards and supports for teaching, and urged university administrators to increase their commitment to teaching.

As faculty talked about their satisfactions and frustrations, they offered several suggestions for easing time pressures, reducing financial strains, and increasing opportunities for career development. Faculty urged the university to provide released time at different career stages, less restrictive policies for leaves and sabbaticals, internal research grants, more retirement options, revisions in faculty review practices, attention to problems of dual career families, more systematic efforts to promote colleagiality, and acknowledgements—both tangible and intangible—of faculty achievements. Again, the details of their recommendations reflected the emphasis they wished given to research, teaching, and service.

At one level, then, the study found some recurring themes in faculty members' discussions of their careers. However, more interesting and, perhaps, more illuminating were the variations on those themes. Efforts to use faculty reports of satisfactions and discontents as the basis for determining what might raise morale, increase productivity, or promote career development will need to respond to the differences among faculty as well as to the similarities. It seems unlikely that any single program or opportunity or resource would be universally well-received. On the contrary, again and again throughout the interviews, faculty recommended more flexibility—in defining academic careers, in developing policies, in allocating resources, in providing opportunities, and in dealing with faculty members.

APPENDIX

Faculty Career Interview Guide

1. How did you come to choose an academic career?
2. Could you briefly describe your career—the major responsibilities and interests from your first to your current position?
3. What are your major strengths as a faculty member?
4. How does the university recognize or reward your strengths? If not, how might they capitalize on and reward your skills?
5. What skills or abilities would you like to improve? Are there ways the university could assist you to develop or improve the areas mentioned?
6. How can the university assist faculty in developing or enhancing their careers?
7. What are both your short and long term career goals?
8. Did you ever think of making a career change?
9. How has life outside of work made an impact on your career development?
10. If you were able to start all over again, do you think you would still choose an academic career?

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A Theory of Effectiveness: Faculty Development Case Studies[1]

Ronald A. Smith
Concordia University

Fred S. Schwartz
Vanier College

Many faculty developers spend a significant portion of their time working as consultants with faculty members. How successful are they in this role? Argyris and Schon (1974) and Argyris (1970) suggest that effectiveness in a consulting relationship depends on three factors. First, the consultant must elicit valid information about the problem. If relevant information is withheld or hidden (whether deliberately or unintentionally), problem identification, problem solving, and decision-making are hindered. Second, it is important to create a climate which encourages free and informed (rather than coerced) choices and commitments. Third, no progress can be made unless the person seeking assistance freely decides to take action and to monitor success or failure.

If these are the conditions of a successful consulting relationship, what strategies are most consistent with them? Argyris (1982) makes two essential points. The first concerns control. Only if clients share in the design and control of tasks and the environment is there likely to be a free flow of information and free and informed choices. The second concerns the way in which individuals deal with negative feelings that emerge in working relations. Rather than trying to protect themselves and the other person in these threatening situations, they should work together to generate valid and relevant information.

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[1] A version of this paper has been presented to the Canadian Educational Research Association meeting in Montreal, May, 1985.

These strategies for action and their associated values (valid information, free and informed choice, and internal commitment) call for a collaborative inquiry process. The faculty developers and their clients are viewed as interdependent. Neither is likely to have the solution to the problem at hand, and each requires the other's help in working through the problem.

GENERATION OF CASE STUDIES

In order to collect data to assess the effectiveness of faculty developers in complex interpersonal situations, we invited fourteen faculty developers attending a workshop at a national conference to write up a detailed study. The background for the case described Professor White (an alias) who is dissatisfied with the performance of student J. Doe in his class. White wants to keep Doe in class and help him pass, but is giving his final warning. We provided workshop participants with a transcript of some of Professor White's statements to Doe. These statements were said to represent the range of meanings that Professor White communicated to Doe.

1. Doe, your performance is not up to standard; moreover, you seem to be carrying a chip on your shoulder.
2. It appears to me that this has affected your performance in a number of ways. You seem lethargic, uncommitted, and disinterested. My students cannot have those characteristics.
3. Let's discuss your feelings about your performance.

4. Doe, I know you want to talk about the injustices that you believe have been perpetrated on you in the past. I do not want to spend a lot of time discussing something that happened several months ago. Nothing constructive will come from it. It's behind us.
5. I want to talk about you today, and about your future in my class.

We asked each faculty developer to produce: (a) an analysis and critique of how White dealt with Doe; (b) any recommendations they would give to White, and (c) a conversation they would have with White if he came to them and said, "How well do you feel I dealt with Doe." We used the following format:

In this column, write any concurrent thoughts or feelings you would have that, for whatever reasons, you would not communicate with White.	In this column, write what you would say to White, how you would expect White to respond, and how you would respond to White's reply. Write up the actual conversation with White.

We examined the cases for each faculty developer's judgments of White's effectiveness, the implied theory of effectiveness embedded in the analysis and critique of White's performance, and the extent to which the dialogue generated was consistent with the inferred theory of effectiveness. We invite the reader to consider his or her own theory of effectiveness before going on.

ANALYSIS AND CRITIQUE OF WHITE'S EFFECTIVENESS

An examination of the "analysis and critique" section of the case write-ups led us to conclude that all of the faculty developers judged Professor White's performance to be inadequate. Column 1 of Table 1 presents illustrations from the developers' analyses and critiques of his effectiveness. We inferred their theories of effectiveness from their statements as illustrated in Column 2. During the workshop, we made these inferences explicit and participants confirmed them.

TABLE 1

A Faculty Developer's (FD) Reasoning about White's Effectiveness

FD's analysis and critique of White's effectiveness	Inferred theory of effectiveness	FD's recommendations to White
"Expectations may not have been clear to students"	make your expectations clear	"ask questions about expectations of student performance & how these were communicated"
"'You seem to have a chip on your shoulder, assumption never checked out"	check out your assumptions	"share with students assumptions/perceptions of chip; ask, if accurate, how and why?"
"The whole tone of this is extremely negative and will probably put the student on the defensive."	set positive tone; avoid defensiveness	"Instructor should indicate concern rather than criticism"
"Instructor seems to have already made up his mind"	don't prejudge	"Instructor should try not to form an opinion until he has heard the student's side of the story"
"The professor attributes all sorts of reasons to student for the poor performance—chip, etc.—which may or may not be valid"	test out your attributions	"Hear out from student why she/he isn't doing well; perhaps White's interpretation of situation is false"

Column 3 of Table 1 presents the developers' recommendations to White. In the cases illustrated, their recommendations are consistent with their theories of effectiveness. However, there were times when the reasoning about White's effectiveness was internally inconsistent. For example, one developer wrote, "The teacher has already prejudged or determined the cause of the student's poor performance—'past injustices'!" But that statement indicates that the consultant has made a judgment without any apparent attempt to verify its accuracy. When we made the participants in the workshop aware of this paradox, namely, that they were doing to White exactly what they had judged as ineffective when White did it to Doe, they readily acknowledged it. However, they said they would not actually say or do these things to White. We need, therefore, to examine the dialogues they created to see whether their conversations with White were consistent with their theories of effectiveness.

Tables 2, 3, and 4 present the complete dialogues generated by three of the participants. These cases were chosen, because they reflected the major findings of our analysis clearly and concisely.[2]

Notice in Table 2 that:

1. The left column gives information about the developer's theory of effectiveness: avoid negative critiques (A); don't be blunt (C); allow client's participation (B); allow the expression of feelings (C). (The letters in parentheses refer to paragraphs in Table 2.)
2. The left column also reveals the developer's espoused strategies: "don't jump in with negative critiques" (A); "probe to see if White can come to . . ." (B); and "open up an avenue of discussion . . ." (C)
3. The developer wants to "show the value of discussing" (C), and "open up an avenue of discussion . . . share ideas," but paradoxically does not share his or her own feelings and judgments in the dialogue on the right.
4. After the questioning strategy (D, F) designed to lead White to come to the developer's diagnosis doesn't work, the developer eases in his or her own diagnosis, but indirectly: "do you think it might have helped . . . ?" (H), and "we all need to . . ." (J).

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[2] The complete case write-ups are available from the authors.

TABLE 2

Dialogue Between First Faculty Developer (FD) and White

Uncommunicated concurrent thoughts and feelings	**Dialogue between FD and White**
(A) Assumption: Relationship between FD & White is casual & this is first session between us. I don't want to jump in with a negative critique immediately. I will assume that he has a positive experience?	(D) *FD*: Well, I feel it was very important to your process with Doe that you genuinely want to help him. Tell me, what was Doe's response to your effort to help?
(B) What I feel is important in his dialogue with Doe is that Doe was not allowed to participate. I would probe to see if White can come to this understanding on his own.	(E) *White*: Well, it was pretty negative. You know he has a chip on his shoulder and it really affects his attitude. I don't think that he will make it.
(C) I don't want to say bluntly, "You were negative in your talk with Doe," but I do want to dialogue or show the value of discussing Doe's feelings of past injustices. If White can open up an avenue of discussion, then we might share ideas.	(F) *FD*: Do you think there was anything you might have done differently that might have helped the situation?
	(G) *White*: Probably, but I'm not sure what. I told him what my expectations are and tried to guide him to deal with the future rather than staying in the past. I don't have the time for a lot of unimportant stuff.
	(H) *FD*: White, do you think it might have helped to draw him out on what he felt his problems were? Sometimes people are able to see the future a little more clearly if they are able to discuss the problems that are bothering them—even if they might not relate directly to what you think is important.
	(I) *White*: Well . . . maybe.
	(J) *FD*: Frankly, we all need to be a little more patient when attempting to help out students.

5. The developer evaluates performance, "Doe was not allowed to participate" (B), "you were negative" (C), and assumes that these are accurate and valid without question.
6. The developer's diagnosis that Doe was not allowed to participate (B) implies that is is important to allow the client to participate in the dialogue. The strategy is not to confront White directly with the diagnosis but rather to ask a series of questions. When Doe's answer (G) to a question is not consistent with the developer's diagnosis, the answer is ignored, and another question is asked (H).
7. The developer wants to "open up an avenue of discussion. . . share ideas" (C), but sharing the diagnosis would violate his or her criteria for effectiveness, which is "don't jump in with a negative critique" (A) and "don't be blunt" (C). Hence, built into the theory of effectiveness and reasoning are features which prevent openness and problem solving.

Table 3 presents another dialogue. Some of our observations about this dialogue are:

1. The left column reveals a part of the developer's theory of effectiveness: "have students make verbal commitments to the ground rules of the course" (A). Yet, in the dialogue, the theory is not made clear to White, nor is his explicit commitment and acceptance of the theory gotten from White.
2. The developer evaluates him: "White has already decided Doe is wrong" (B). This implies that White should not make prejudgments, yet the developer has prejudged White.
3. In (B), the developer criticizes White for gathering evidence to support his prejudgment that Doe is wrong. Yet, the developer's own strategy of asking questions (D, F) to get evidence to support the judgment that White didn't get student commitment (A) contradicts this theory of effectiveness. He or she is doing exactly what was judged ineffective when White did it to Doe.

TABLE 3

Dialogue Between Second Faculty Developer (FD) and White

Uncommunicated concurrent thoughts and feelings	Dialogue between FD and White
(A) Too often as teachers, we set the ground rules implicitly, do not communicate them to students, and do not have students take verbal responsibility for their own learning. They don't realize they've made a commitment by staying, so it is hard for you to appeal to their integrity in this choice later. Might be better to allow students to participate in setting the ground rules.	(D) *FD*: White, when the class first began and you set forth your expectations for students, did you give each student the opportunity to accept individual responsibility for meeting those expectations or withdrawing from the class?
	(E) *White*: Well, I said what my students must do and a few did drop out at that time.
(B) I think White has already decided Doe is wrong and is gathering evidence to prove this.	(F) *FD*: Would you be willing to allow Doe to recommit himself to meeting those expectations?
(C) White needs to acknowledge the past can be past for himself as well as Doe.	(G) *White*: His behavior shows he really isn't interested in the course.
	(H) *FD*: I agree he may not have shown much interest in the past. The question is whether it is too late for him to behave in a way that would allow him a success for the remainder of the class. If it is, perhaps it is appropriate for him to withdraw now and take the course later.
	(I) *White*: Well, I consider it a failure on my part if I can't communicate my enthusiasm for this class at a level where students will sense and respond to it. I really don't want him to drop out.

(Table 3 continued on page 71.)

TABLE 3 (continued)

Uncommunicated concurrent thoughts and feelings	Dialogue between FD and White
	(J) *FD*: You know, White, we can not "learn" a student anything. Some students are willing to respond to what we have to offer at a given time and some are not. I would suggest that you tell Doe some ways he might be able to deal with those issues you feel are standing in the way of his learning at this time. Then, either get his commitment to "be here and now" and to keep his word to do what he said he would do in this class by virtue of his staying in the class, or ask him to leave the class.

Table 4 presents a dialogue which represents a direct approach, rare with this group of developers. Our observations about the dialogue are:

1. The developer says that White's conclusions may not be correct because of factors that have not been explored (B). Yet, the developer's own conclusions, that White is "opinionated . . . functions on a think level . . . " (A), may be wrong and are not explored.
2. The developer's attribution that White is "not someone you could say he is wrong to" (A) prevents testing other evaluations, because that would be telling White he is wrong. This thinking prevents White from generating the information necessary for collaborative problem solving. The process is self-sealing.

CONCLUSIONS AND DISCUSSION

These examples illustrate what we found in all of the dialogues. The faculty developers withheld information and made assumptions, judgments, and attributions without

TABLE 4

Dialogue Between Third Faculty Developer (FD) and White

Uncommunicated concurrent thoughts and feelings	Dialogue between FD and White
(A) He is a very opinionated person who functions on a think and not a feeling level. So I would appeal to White's reason and sense of fair play. He is not someone you would say that he is wrong to. He is, however, not afraid to say and think how he feels.	(B) *FD*: You have come up with a conclusion about Doe's reasons for poor performance which may not be correct. Perhaps Doe's poor performance may be due to other factors that, if explored with you, would lead to a better attitude toward your course.
	(C) *White*: I think the kid is smart. I find it frustrating that all sorts of personal factors prevent him from doing well.
	(D) *FD*: How could you tell him that?
	(E) *White*: It has to be straightforward and short like I told you—no deep analysis stuff. Maybe I can tell him I don't know why he is not doing well.
	(F) *FD*: It sounds as if you have a number of things you could explore with one another.

admitting or testing them. Consequently, they could have been acting on the basis of inaccurate information. They rarely confronted each other or raised threatening issues. They avoided expressing negative feelings. Their emphasis was on being logical, objective, and unemotional. As a result, the issues that need to be raised to solve significant problems were unlikely to be expressed.

The behaviors these case studies suggested are consistent with attempts to manage information and to control both the situation and the other person. These actions are likely to create defensiveness, mistrust, and little learning. The faculty developers espoused openness and problem solving, but their case studies revealed behavior unlikely to lead to either. They created paradoxes, dilemmas, and inconsistencies, and they did not seem to be aware of them.

Faculty developers do not deliberately design their actions to produce these consequences. When these dilemmas were pointed out to them, they readily admitted to them. Our work suggests to us that faculty developers have theories-of-action of which they are unaware, but which actually govern their behaviors. These theories-in-use are different from their espoused theories of effective action.

Research on various adult populations indicates that most people have a theory-in-use that, in fact, differs from the one they espouse. Argyris and Schon (1974) have called this theory-in-use Model 1. They have found it in over 99% of the more than 2000 professionals they have studied (Argyris, 1983).

This Model 1 theory-in-use has its basic values or governing variables: define your goals and try to achieve them, maximize your chances of reaching your goals (avoid losing), be rational, and minimize the generation of negative feelings. The behaviors of the developers (withhold information, make unillustrated and untested evaluations, etc.) and the strategies which are inferred to underlie them (manage the information and control the task) flow from and are consistent with Model 1 governing variables. In complex interpersonal situations, these values, strategies, and actions lead to counterproductive behavior and ineffectiveness.

To explain the inconsistencies and dilemmas in the faculty developers' cases, we must look to their thinking. They were confident of their analyses. Inferences and assumptions were taken as valid, even though Professor White may logically have made different inferences and assumptions. The faculty developers, by assuming their logic was correct and failing to test the validity of their inferences and assumptions, established a system of thinking in which error was possible and unlikely to be discovered. In addition, by withholding information and by minimizing the expression of negative feelings, the faculty developer helped to create a climate where the feedback necessary to detect errors was unlikely.

If you agree with our analyses and interpretations of the cases, and accept the theoretical position, then increasing faculty development effectiveness means becoming aware of your theory-in-use and the way in which it contradicts your espoused theory (Smith, 1983). This task is difficult and complex. The bibliography contains several references which might be helpful: Argyris (1982), Bolman (1978), Heller (1982).

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The Instructional Skills Workshop Program: An Inter-Institutional Approach

Diane Morrison
Ministry of Education
Province of British Columbia

INTRODUCTION OF SYSTEM-WIDE PROFESSIONAL DEVELOPMENT

The college and institute system in British Columbia includes 15 community colleges and five provincial institutes offering a mix of university transfer, vocational, career, technical, basic education, and community services programming. The faculty for these programs have formal qualifications in their disciplines but seldom have formal training in instruction, curricula design, or adult education. Only the vocational sector has had a formal program (the Instructor's Diploma program) specifically designed to develop their teaching capabilities. The development of instructional personnel has always been a concern of the institutions but was initially expressed largely by supporting individuals to attend conferences for subject matter updating rather than for the improvement of instructional capabilities (Pankratz et al., 1976, p. 5).

The B.C. Council of College and Institute Principals recognized the need for instructional skills development as a system-wide priority. In 1978, the Council submitted a formal proposal requesting that "the Ministry of Education give immediate moral and financial support to the establishment and maintenance of a system-wide program of professional development and institutional renewal for the colleges and provincial institutes in British Columbia" (B.C. Council of Principals, 1978, p. 2). Bruce Fraser, then Executive Director of the Ministry's Program Services Division, responded to this request by establishing a program budget and assigning one-half of my time for the development and coordination of system-wide professional development initiatives. Through cooperative efforts with college and institute personnel, the Ministry of Education has played a major leadership role in ensuring that professional development and institutional renewal opportunities are available in the B.C. post-secondary system.

MAJOR FEATURES OF THE MINISTRY OF EDUCATION INITIATIVES

The response of the Ministry of Education was based on a number of operational guidelines. Programs supported by the Ministry of Education were to:

1. Provide training for local personnel to deliver on-site programs for their peers.
2. Be relevant to instructors in all discipline areas and with varying levels of instructional experience.
3. Allow for voluntary participation by institutions and by individuals within institutions.
4. Be based on shared funding, including Ministry project funding and a commitment of a portion of the operating budget of the institutions.
5. Use personnel within the system to ensure:
   —development of higher-level skills within the human resources of the British Columbia post-secondary education system;
   —encouragement of a climate of professionalism and a capability in the staff of the colleges and institutes to

address their own and each other's developmental needs;
—evolution of a diversity of approaches in various institutions resulting in an atmosphere of experimentation and innovation.

THE INSTRUCTIONAL SKILLS WORKSHOP (ISW) –THE CORE PROGRAM

Once these operational guidelines were established, the Ministry of Education contracted with Doug Kerr, then Staff Development Consultant at the Vancouver Vocational Institute campus of Vancouver Community College, to design the Instructional Skills Workshop, which is the core activity in the province-wide professional development program.

The Instructional Skills Workshop Program is an interlocking system of three levels of training:

1. Instructional skills training concentrates on the development of the fundamental skills of writing objectives, preparing lesson plans, and conducting instructional sessions.
2. Facilitator skills training prepares experienced instructors to conduct the Instructional Skills Workshop at their own institutions.
3. Trainer training prepares experienced ISW facilitators to lead a Facilitator Skills Workshop.

The program is based on a peer training model and is designed to be consistent with a number of precepts of lifelong learning. Doug Kerr based his design on the assumption that "the capability to effect dramatic improvement in the quality of instruction resides in the instructors currently functioning within the system" (Kerr, 1980, p. 38). The Instructional Skills Workshop Program provides an instructor with a small group setting in which to work on the improvement of his or her instructional skills and places the responsibility for learning onto the individual participant. The ISW program is based on an experiential learning model with each participant working on design skills as well as on instructional presentation skills. During the workshop, each participant designs and conducts three "mini-lessons" and receives video feedback along with written and verbal feedback from the other workshop participants who have been learners in the mini-lesson. Participants are encouraged to prepare mini-lessons that will involve new learning for the other participants. This presents a challenge of designing for a specific audience. Much of the workshop learnings come from the participant's reflections on his or her own learning process and from developing skills in providing effective and helpful feedback to the instructor based on his or her own experience as a learner in the mini-lesson. The facilitator skills training program places a great deal of emphasis on preparing the workshop leader to manage this feedback process carefully.

The ISW workshop can be conducted in any of a variety of formats, ranging from an intensive four- or five-day workshop to a series of shorter segments offered over several weeks. The workshop is designed for a group of four to eight instructors and seems to benefit from having a group with a mix of instructional backgrounds and a range of levels of instructional experience. The workshop helps instructors identify their own strengths and weaknesses and pinpoint areas for development after the workshop.

IMPLEMENTATION OF THE ISW PROGRAM

Each college and institute principal was asked to identify a senior instructional manager as the ISW contact person. This contact person is the key person for the introduction of the instructor development program at the institutional level. These contact persons were invited to select one or two instructors from their own institutions to be trained as ISW facilitators. The first workshop, in August, 1979, was directed by Doug Kerr and Peter Renner, the latter being the author of *The Instructor's Survival Kit* (1983), the principal support print resource for the workshop program.

In the fall of 1979, Jim Wright, Vice Principal of

Cariboo College, requested an alternate delivery model—an on-site Facilitator Skills Workshop for a team of five instructors. This was an alternate to the centrally located training workshops to which institutions sent one or two representatives at a time. Ted Anderson and I decided to pilot this second model of facilitator training at Cariboo College in January, 1980. The on-site model provides the institution with a core team of ISW facilitators who have worked together developing their skills. This on-site model proved to be a very important factor in the successful implementation of the program. Offering the facilitator skills workshops on-site when requested has provided several advantages, including: accommodation for variation in program implementation rates, on-going visibility of the program, continual introduction of new facilitators with a high degree of enthusiasm into the system, continuing development and refinement of the program, and the development of trainer skills in a greater number of individuals (Mason & Kerr, 1981).

Since 1979, 250 participants have completed the five-day Facilitator Skills Workshop, and 46 facilitators have gone on to complete the Trainer Skills Workshop. Ted Anderson, an instructor from Vancouver Community College, was seconded to the Ministry of Education as the B.C. Provincial ISW Coordinator. He had the responsibility for conducting all of the Trainer Skills Workshops and for overseeing all of the Facilitator Skills Workshops. Ted infused the workshops with his originality and energy and substantially expanded the range of feedback and instructional techniques used within the program. His creativity was instrumental in ensuring that ISW became a dynamic and growing program.

RESPONSE TO THE PROGRAM

The effort at the provincial level was originally directed to the training of facilitators and trainers. Enthusiasm for the program at the facilitator training level has been very high. This is one important index of program success, but it is also important to look at how the program has been adopted at the institutional level. The Ministry of Education does not directly fund the Instructional Skills Workshops, so the number of workshop participants is one important measure of the value placed by institutions on the program. Approximately 2,000 participants have now completed an ISW workshop. Many facilitators have done an outstanding job in coordinating workshops at their respective institutions and in ensuring that their colleagues have opportunities to participate in the instructional skills program at their own campuses.

While the number of participants is one good indicator of program success, it is also important to consider the satisfaction of instructors and administrators at participating institutions. Following are some sample comments from participants in the program:

> —I've been teaching for about 12 years, without any kind of formal instruction in methodology, and although I thought I was doing a reasonable job, there was a secret apprehension or fear. It turned out that my co-participants were not in the least judgmental or critical, they were prepared to point out where improvements could be made, but the identification of those areas was done in such a way that I felt highly energized by the process and set out that night to put together what turned out to be a much better presentation the day after. From that point on, it was clear sailing. It was a highly enjoyable experience.

> —It has really heightened an awareness of instructional technique and provided many of us with an excellent opportunity to sharpen skills and to build on skills that we previously had.

> —Up until I got into the ISW, most of my professional development was technical in nature. Now I am much more aware of teaching styles and learning styles and the effective use of various training aids. I guess I am moving from being teacher-oriented to being a lot more student-oriented.

A senior administrator comments on the impact of the ISW program at his institution:

> —There is a lot of willingness to look at new modes of instruction, new ways of delivering programming, and I think that's really why I have supported it as much as I have,

> because we need that kind of energy and that kind of openness in the college. It is healthy having this type of group within the college and they feel quite free to drop in and talk about what's going on in their classes, and their focus is not on those difficult budgetary matters and organizational matters as much as on the quality of what's going on, what the place is all about, which is teaching and learning.

ON-GOING SUPPORT FOR FACILITATORS

Throughout the period of program implementation, there has been a strong emphasis on networking and the sharing of ideas, talents and energies across the institutions. A number of activities have helped build the network, including an ISW newsletter, the exchange of articles through a writers' network and short "refresher" workshops for college facilitator teams. We have expanded into other skills training in learning styles assessment, in one-to-one consultation work with faculty, and in offering services to instructors seeking formative evaluation from their students.

The Ministry of Education also funded a team from Capilano College to produce a series of eight videotape programs and print booklets which can be used independently or as a resource in the instructional skills program. The series was filmed at colleges and institutes throughout B.C. and provides a unique opportunity to view candid footage of many instructors in live teaching situations (Ministry of Education and Capilano College, 1982).

The Ministry of Education also sponsors an annual week-long residential leadership development program for facilitators. It provides an opportunity for facilitators to strengthen their understanding of the concepts underlying experiential instructor development activities as well as become familiar with new developments in the ISW program. The workshop is referred to as Potlatch, because our first workshop was held at Camp Potlatch, which is located at one of the original West Coast Indian Potlatch sites. The name Potlatch has particular significance for us; we find many parallels between our program and the Indian Potlatch gift-giving tradition. Our emphasis in the program and at Potlatch is on the exchange of ideas among the facilitators and on giving away the gifts of knowledge, talent, and energy that each one has to offer. Our major outside resource person for Potlatch is Bill Bergquist, author, professor, and consultant from California. Bill has given his energy, ideas and enthusiasm to our program since its inception in 1979. He has helped keep us aware that any successful program in professional development requires attention not only to instructional development but to personal and organizational development as well. As stated by the Cariboo College Facilitators:

> Our primary goal is to foster . . . a climate in which people have . . . an on-going commitment to personal, professional, and institutional growth and development. In this climate we hope that each person can become aware of the resources he can offer to others and of what they, in turn, can offer him. By highlighting the already extensive resources represented by the faculty and staff, by continuing to develop ourselves as resources, and by providing resources for others, we hope to work toward this goal. (Cariboo College ISW Facilitators, 1982, p. 1)

FUTURE DIRECTIONS

The system-wide ISW program has survived for six years now. Individuals who are most active in the program are looking at what possible directions we might take in the future. Our roots are still in the ISW experiential model of "design-instruct-feedback-redesign" and the key role of the trained facilitator in managing that process. Through new opportunities, we are discovering ways to continue to keep the ISW core workshop program alive while expanding into other areas such as process facilitation of department and college-wide educational projects, assisting with formative evaluation procedures for individual instructors, and helping with orientation activities for instructors changing their programs to an individualized learning format.

If your institution is interested in the Instructional Skills Workshop as a base program for staff development activities, we can introduce the program at your centre. Once a core group has completed the initial Facilitator Skills training, they will be ready to offer Instructional Skills Workshops to faculty on your own campus. After some workshops have been held, some of the facilitators could be selected to complete the Trainer Skills Workshop. Your local trainers would then be equiped to lead the Facilitator Skills Workshop on-site and make the ISW program self-sustaining. With ISW trainers in place, you can invite instructors from neighboring institutions to participate in Facilitator Skills Workshops, thereby broadening the system-wide base of support for staff development in your region. We can also assist with the initiation of an annual residential program patterned on the British Columbia "Potlatch" model, which would provide an on-going vehicle for maintaining and upgrading the regional ISW program and for networking among the facilitators. We have found that the Instructional Skills Workshop program has excellent potential as a base for staff development initiatives and would be pleased to have the opportunity to share our experiences with other institutions.

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Critical Thinking in a Freshman Introductory Course: A Case Study

Lynn L. Mortensen
Willis D. Moreland
University of Nebraska—Lincoln

It's hard not to notice the explosion of interest in critical thinking at all levels of education. Numerous national conferences have been organized to address the topic, while books and articles report on the research and practical efforts to promote it. Centers devoted to the study of critical thinking have sprung up around the country, and in July, 1985, the National Council for Excellence in Critical Thinking Instruction was established (Paul, 1985). The recent national reports on education reiterate the importance of fostering critical thinking. In many states, legislators have called for and, in some cases, mandated attention to the development of thinking abilities at all levels of the educational system.

Out of all this furor may come a better understanding of what we intend to accomplish and how best to do it, improved practices, and significant changes in student outcomes. For the present, we can begin by sharing our insights from research and practice, so that we can move ahead together and learn from each other. In this spirit, we offer the experiences and lessons learned by a group of faculty at the University of Nebraska Teachers College who have been wrestling with facilitating the development of critical thinking in the freshman, introductory, required course of the college.

Foundations of Modern Education, Ed 131, had been in the college curriculum for a number of years. Much of the course emphasized the history and philosophy of education with some attention paid to encouraging an understanding of teaching as a profession. The typical methodological approach was lecture/discussion.

Three years ago, there was a growing feeling that a major reorganization of the course was needed. Course feedback from students had been mixed over the years. Students had trouble seeing the relevance of the course, and the content and expectations for student performance varied considerably from section to section. The faculty, under the leadership of a new dean, wanted to find ways to provide a more positive and stimulating experience that would allow freshmen to become more involved in their own learning. Discussions about the desired framework of a significantly different program for freshmen led to an agreement by the faculty that the new course would:

1) be considered a college course rather than being housed in a single department;
2) be organized around a study of selected issues in analyzing the role of the school in society;
3) facilitate the development of critical thinking abilities in students;
4) be taught by the best senior faculty that the college had available; and
5) be directed by a faculty member who would coordinate the course revision process.

Assigning the most experienced faculty to the course was extremely significant because it represented a commitment to the importance of teaching freshmen.

The dean and the coordinator identified 14 senior faculty members from across the college to take on the responsibilities of planning and implementing the new course. It was hoped that these very different individuals could find a common ground upon which to build a uniform course in education for college freshmen. Each faculty member was a specialist in his or her own field, had an identifiable teaching style, and was not usually involved in cooperative planning. The very process of selecting faculty to participate in an innovative teaching-learning situation may well have stimulated them to work together toward a common goal.

THE PLANNING PROCESS

The coordinator prepared a planning guide before the first meeting of the team. In it were some fairly specific goals for the course, some characteristics of an issue-oriented problem-solving approach to learning, a timetable, and a set of issues that needed to be resolved. The planning guide helped establish a common base from which detailed instructional-decision-making could begin.

Although the planning guide established some general goals for the course, the specific issues to be studied had not been chosen. Three important decisions were made early.

1. The team would identify five or six educational issues upon which alternative positions might be held. These issue areas would be selected for their relevance and interest to freshman students.
2. The team would not have a standard textbook but would develop a text using materials drawn from a variety of sources.
3. A teaching guide would be written to provide plans for teaching each of the issues.

These decisions were important because they forced the team to think creatively about the kind of course that could be established without relying upon some traditional set of materials which might be taught in a traditional way. Thus, the team was forced to create a new course which would differ fundamentally from the freshman course that had previously existed in the college.

Each member of the team was asked to submit a list of issues that might be appropriate for inclusion in the course. As might be expected, they tended to suggest broad topics that were generally not issues for which alternative positions could be identified. The coordinator categorized these topics into 16 major areas of study and re-submitted them to the team for discussion. The team developed a priority ranking and narrowed the list of appropriate topics to eight.

The next step was to devise a focusing question for each of the topics around which alternative positions could be developed. The coordinator provided a checklist of criteria for writing focusing questions, but selecting appropriate questions proved to be a difficult task anyway. It was clear that members of the team were primarily concerned with identifying content to be taught; they were not considering how that content could be organized to be consistent with a problem-solving approach to teaching. Yet, it was essential that the staff understand and adopt this orientation, if the proposed course was to be a departure from the previous course.

In an attempt to help the staff move toward more appropriate planning, the coordinator decided to ask all members of the team to focus on one issue and develop a prototypical guide. One session, then, was set aside to brainstorm ideas related to compulsory education, the first issue selected for the course. The session produced a variety of ideas, concepts, goals to be achieved, and suggestions for teaching strategies. It was a useful session. Asking team members to concentrate on one issue resulted in an extremely rich list of ideas about the topics and provided a basis for thinking differently about the course. The coordinator organized these ideas into a detailed plan for teaching "compulsory education," and that served as a general model for developing each of the other topics. This proved to be a significant step in planning additional topics that would lend themselves to teaching critical thinking.

DEVELOPMENT OF CURRICULUM MATERIALS

In order to provide a common approach to the instuctional strategies used in each section of the course, it was decided that a fairly detailed teacher's guide needed to be written. The guide included instructions for conducting small group, large group, and individual activities; questions for discussion; assignments for students; and media materials to be used. Each instructor was given a set of transparencies, and the team had access to multiple copies of slides, films and videotapes. Because this course was developed from scratch, it was no small effort to write the teacher's guide, make transparencies, and organize the media. Yet, the effort was well worth it. Probably no other element had as much influence on establishing consistency among sections as the teacher's guide. It was particularly useful because faculty were teaching unfamiliar content, often with unfamiliar teaching strategies.

The student text, created by the team, was a collection of articles, court cases, federal and state laws, data from national surveys, and historical essays that reflected or supported alternative points of view on the six controversial issues chosen as topics. In essence, the task of doing library research was done for the student. The student guide included expected outcomes for each topic and the reading and writing assignments. In some cases, particularly for more difficult articles, study questions were also provided.

Since the focus of the course was intended to be the development of critical thinking skills, students were expected to consider alternative positions on given topics and to support their positions with relevant evidence. A heavy emphasis was placed on writing as documentation of this effort. Some faculty were skeptical about the emphasis on writing and felt the course was becoming a writing course. However, it became increasingly clear as the course got underway that the heavy emphasis on writing was well placed. Writing papers as a culminating activity for each topic, writing in class on occasion, and writing in journals for some instructors, helped students clarify their thinking and gave invaluable feedback to faculty about student progress in critical thinking. While classroom interaction was essential as a strategy to allow students to express their views, the writing assignments helped hold students accountable for their thinking.

STAFF DEVELOPMENT

Staff meetings were held with all members of the faculty team every week of the first semester and every two weeks in subsequent semesters. While much of the time was spent in managing the logistics of the course, it was also a time for faculty to share ideas and classroom experiences. Faculty reported that they valued these meetings. Because this was an innovative program, the shared experiences did much to develop faculty confidence in working in a new classroom environment. Faculty also realized that their discussions with others facing similar problems and experiences increased their own competence in the classroom.

Staff development activities were designed to increase each instructor's use of effective teaching strategies that would promote student use of problem solving skills. Three of the staff development strategies seemed to have had a significant impact.

First, it was decided that all instructors should administer the TABS (*Teaching Analysis by Students*) midterm student feedback questionnaire. The University's Teaching and Learning Center provided individual as well as group results. Each instructor was able to identify strengths and areas in which some improvement was needed. Some instructors shared the data with colleagues, leading to discussions of ways to improve their teaching effectiveness. The team also discussed the group results and considered what might be done to increase the impact of the course. Taking a reflective stance toward a course is sometimes difficult to do, but the use of the TABS certainly helped focus the team's discussion on effective teaching strategies.

Instructors were also encouraged to audiotape a class discussion, listen to the tape, and tally the interaction, using an inquiry form specifically developed for the course. Not all staff members elected to do so, but those who did found it to be a reinforcing and positive experience.

Workshops were a third activity that contributed to developing the course and the staff. These were held for one or two days before the first two semesters and at the end of the year. Discussions centered around ideas that worked, positive and negative experiences, topics that were well received and those that were not, and the logistics of procedures, organization, and requirements. The development of an open, sharing climate in the workshops made them especially successful staff development activities.

CRITICAL THINKING SKILLS

As a group, faculty on the team have become more sophisticated in the identification and the development of critical thinking skills and writing skills. With each semester's involvement in the course, the faculty refine and clarify what they are doing and how they are trying to do it.

During the second year, we developed two methods for assessing students. Based on the work of Perry (1970), King and Kitchener (1983), and Alverno College (Mentkowski, Moeser & Strit, 1983), three open-ended questionnaires for assessing developmental levels were designed. The questionnaires included six short-answer questions about an educational issue presented in an introductory paragraph. The questionnaires were administered at the beginning, middle, and end of the fall semester; each time, a different issue was posed. Students from all sections of the course participated (N = 328). One hundred three questionnaire sets were randomly selected for coding, using a system developed at Alverno College (Mentkowski, Moeser & Strit, 1983).

Results suggested that freshmen entering the course were likely to be "multiplistic" in their thinking, but that some progression toward "relativism" was possible in a semester. While the data do not suggest a causal relationship between experience in this course and change in developmental level, they are nonetheless useful in course planning and implementing decisions.

During the spring semester, we collected a second copy of each of the six writing assignments from every student in Ed 131. Criteria and procedures for analyzing student writing assignments for evidence of critical thinking skills will be developed, based in part on the work of Kurfiss (1983) and Hays (1983). Results should be available by the fall of 1985.

We have designed a three-year plan for continuing to gather data, from a variety of perspectives, on student learning of critical thinking skills. From those data, we hope to learn more about freshman student characteristics, so that we can provide a better match between curriculum materials, teaching strategies, and development of critical thinking skills.

WHAT WE'VE LEARNED

Our definition of critical thinking includes skills in analyzing and evaluating evidence in order to make informed rational decisions, the kind of thinking required in Bloom's (1956) evaluation level. In his discussion of thinking at the evaluation level, Bloom concluded:

> The types of evaluation discussed here are not frequently used in secondary or collegiate education . . . Perhaps the greatest value of the taxonomy at this point is in pointing to the need for further study and development of testing techniques for measuring competence in evaluating documents, material, and works. (Bloom, 1956, p. 195.)

Whether we have progressed much further today is unclear. What is clear is that increased attention is being given at all levels of education to the development of critical thinking abilities.

After two successful years of implementation of the new freshman introductory course in Teachers College, several insights have been gained into developing critical thinking skills, organizing for curriculum change, and facilitating staff development. Rather than discovering completely new ideas, much of what we have learned simply confirms what research and practice have already shown. The important thing for us and, perhaps, for others is that it is possible to make the kinds of changes and have the kinds of impact that we want to have. We are not necessarily stuck within constraints that prohibit change. We can effect change, if we can manage to do the things that contribute in a positive way to planned change.

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Improving Classroom Climate for Women: The Faculty Developer's Role

Delivee L. Wright
University of Nebraska—Lincoln

INTRODUCTION

Recently, I observed an active interchange between professor and students in a large biology class. It was the kind of activity in which students contributed much and one that ordinarily would be viewed as a productive learning situation. However, in recording responses made to each student's comments, I became aware of a very subtle influence which the professor was inadvertently using with female students. Incorrect answers received a "no" response only when a female student had responded. Other techniques were used to discuss the merits of male student responses that were incorrect. I also observed that women students constituted about half the class, yet they contributed much less than half of the student talk. Nonetheless, the professor reported that the female students, as a group, performed appreciably better on tests than did the male students. Women did have something to contribute. This professor expressed interest in supporting women students and "socializing" them into the field of biological sciences, but his habits of response communicated something different.

This example suggests a need for examination of classroom behaviors to identify inequities in the treatment of women students. Very subtle behaviors may seem so "normal" that specific teaching behaviors which express them go unnoticed, but women students are left feeling less confident about their abilities and about their places in academic pursuits.

INSTITUTIONAL CONTEXT

Twenty years ago, women students comprised a minority population in colleges and universities. Today, they more frequently make up over half of the student group. This shift requires a reexamination of how faculty work with this new majority. Studies report that women students, regardless of interest and aptitude, are not staying in such traditionally male-dominated courses of study as science (Gappa & Pearce, 1985). Other research suggests that "in selecting and reacting to educational environments, females tend, more than males, to be attuned to the personal supportiveness of these environments" (Hall & Sandler, 1982, p. 2). These factors support the need to examine the classroom climate for women.

WHAT HAS BEEN DONE?

In the 1983 volume of *To Improve the Academy*, Susanne and David Whitcomb described many efforts in higher education institutions to address equity issues for women faculty and administrators. The strategies they outlined can improve the environment of the institution and thereby provide a positive context for student equity.

In 1982, the Association of American Colleges' (AAC) Project on the Status of Women published a report, on the "chilly classroom climate" for women (Hall & Sandler). It described common inequities in college classrooms and provided suggestions for faculty who want to encourage full participation. Real-life examples from testimony of women students on a large number of campuses were listed in their study of learning conditions for women.

The purposes of this paper are to provide information about the kinds of inequity which women experience in the college classrooms, to describe ways faculty developers can respond to this problem, and to report results of experiences at the University of Nebraska-Lincoln on this issue.

TYPES OF INEQUITIES FOR WOMEN STUDENTS

Developing a clear idea of the kinds of behaviors which result in an inequitable learning environment is the first step in determining how to respond. The following outline provides some examples from the instructional environment. These are reported in more detail in the ACC report (Hall & Sandler, 1982).

A. Reinforcing invisibility
  —Ignoring women students while recognizing men students, even when women clearly volunteer to participate.
  —Calling directly on men students but not on women students.
  —Calling men students by name more often than women students.
  —Addressing the class, as if no women were present.

B. Communicating different expectations
  —"Coaching" men but not women students in working toward a fuller answer by probing for additional elaboration or explanation.
  —Waiting longer for men than for women to answer a question before going on to another student.
  —Interrupting women students or disproportionately allowing interruptions by peers.
  —Asking women students questions that require factual answers while asking men questions that demand personal evaluation and critical thinking (higher order questions).

—Responding more extensively to men's comments than to women's comments.

—Crediting men's comments to their "author" (". . . as Bill pointed out") but not giving authorship to women's comments.

—Making seemingly helpful comments which imply that women are not as competent as men.

—Phrasing classroom examples in a way which reinforces a stereotyped and negative view of women's psychological traits?; i.e., "typically weak and irrational".

—Using examples that reflect stereotyped ideas about men's and women's social and professional roles; i.e., the scientist, doctor, or accountant is "he" while the lab assistant,patient, or secretary is "she".

—Using the generic "he" or "man" to refer to both men and women.

—Reacting to comments or questions articulated in a "feminine style" as inherently of less value than those stated in a "masculine style"; i.e., a woman who is hesitant, uses questioning intonation and is overly polite.

C. Nonverbal cue differences

—Making eye contact more often with men than with women.

—Nodding and gesturing more often in response to men's questions and comments than to women's.

—Modulating tone of voice when speaking to women.

—Assuming a posture of attentiveness when men speak, but the opposite when women make comments.

—Habitually choosing a location near men students.

—Excluding women from course-related activities; i.e., field trips.

—Grouping students according to sex in a way which implies less competence.

—Favoring men in choosing student assistants.

—Giving men detailed instructions with the expectation they will succeed, but doing the assignment for women or allowing them to fail with less instruction.

—Allowing women to be physically "squeezed out" from viewing a demonstration.
—Making direct sexual overtures.

D. Discriminatory comments
—Comments that disparage women in general; i.e., "busy-body."
—Comments that disparage women's intellectual abilities; e.g., math.
—Comments that disparage women's seriousness and/or academic commitment; i.e., "You're so cute, I can't see you as a professor."
—Comments that divert discussion of a woman's work toward a discussion of her physical attributes.
—Comments about women faculty that define them in terms of their sex rather than their professional status or professional accomplishments.
—Comments that refer to males as "men" but to females as "girls", "gals", etc., rather than "women."
—Comments that rely on sexist humor as a classroom device.
—Comments that disparage the scholarship, perceptions, or feelings of women.

E. Career counseling differences
—Counseling women to lower their aspirations and/or to switch from a "harder" to a "softer" subspeciality.
—Organizing assistantships so men have more responsibility and/or greater opportunity than do women.
—Spontaneously offering to write letters of support for men students, but not for equally competent women students.
—Nominating men, but not equally competent women, for fellowships, awards and prizes.
—Forming more "apprenticeship" or "protege" relationships with men than women.
—Providing women with formal, but not informal, feedback on the quality of their work.
—Inviting only men graduate students to share authorships, make professional trips and meet recognized scholars.

ROLE OF THE FACULTY DEVELOPER

Most faculty want to treat students fairly and to recognize individual talents and abilities. However, they may be unaware of the patterns of behavior described above. The subtlety of these behaviors may lead individual women students to feel and behave as if they were marginal participants without even knowing why they felt that way.

Faculty developers must be aware of the ways in which inequitable behavior is expressed. Once those are known, programs and materials can be designed to respond to this problem. When planning responses to such behaviors, however, it is important to note the concern expressed by the Whitcombs: confronting inequities in higher education may result in

> . . . a polarization of opinion, a trivialization of issues as 'pertaining to women,' and adversarial stances which block understanding, communication, attitude change, and action. It is not enough to open doors, for admittance to a warped organization may mean only that a greater variety of humans will be punished or injured by that organization's responses. (1983, p. 59)

Because women now constitute a majority of college students, faculty developers need to design programs to help faculty reduce the possibility of punishment or injury by thoughtless responses.

FACULTY DEVELOPMENT ACTIVITIES

The following activities are representative of program elements which can address this instructional problem.

A. Workshops can be planned to provide practice for faculty in identifying inequitable behavior, planning alternative behavior, and clarifying pertinent personal values. Video- or audio-recorded examples, as well as scripted classroom dialogue, can be helpful in exercises to analyze inequitable behaviors. Role-playing allows practice in implementing new behaviors.

B. Newsletters can provide information to increase awareness and reflection on this topic. Many times, awareness alone can result in a behavior change. In addition to information, newsletters might include questions faculty can ask themselves regarding equity and detailed examples of inequities which can happen in the classroom. The student statements described in the ACC paper (Hall & Sandler, 1982) can provide excellent testimony to the existence of a problem which is pervasive in higher education. Wright (1983) provides an example of a newsletter devoted to such issues.

C. Student surveys to help faculty assess student perceptions in their own classes can be developed. Faculty might assign research projects to collect local data. The *Student Perception Questionnaire* (Gappa & Pearce, 1982) is an example of a useful instrument.

D. Material which provides detailed information can be made available to faculty willing to learn more about the problem. The Self-Check Quiz in the Appendix might be used to encourage introspection.

E. Classroom observation by a faculty developer or a colleague using a checklist of behaviors could address the following kinds of questions:
   1. What is the ratio of males to females called on to answer questions, make comments, or participate in some other way?
   2. If interruptions occur when an individual is talking, who interrupts and who is interrupted?
   3. Is the verbal response to men compared to women students positive, negative, encouraging?
   4. What non-verbal responses, such as wait time, posture, gestures, eye contact, etc., are made to men and to women?
   5. What discriminatory comments are made?

F. Audio or video recordings of class sessions can provide powerful feedback to faculty members. In addition to the behaviors listed above, the observer might address the following:
   1. Which students do you call by name?

2. Are examples and anecdotes drawn from men's lives only?
3. Can differential patterns of reinforcement be detected?
4. What language pattern are you using? Is there a regular use of male referencing? Do stereotypical assumptions about men and women occur in your classroom dialogue?

PROGRAMS TRIED AT THE UNIVERSITY OF NEBRASKA–LINCOLN (UNL)

In an effort to bring attention to this instructional issue, the Teaching and Learning Center worked cooperatively with the UNL Chancellor's Commission on the Status of Women. Through their efforts, the Chancellor proclaimed 1982-1983 the "Year of the Learning Environment" at UNL. The Commission further designated a month as a time to examine the climate for women on the UNL campus. Twenty-one events, sponsored by fourteen campus organizations, targeted this topic for their programs in February; office personnel, administrators, undergraduate students, graduate students, and faculty were seeing films, having panel discussions and workshops, and, in general, increasing their awareness of subtle behaviors discriminatory to women.

The Teaching and Learning Center was responsible for faculty programs, including the following:

A. The February issue of *Teaching at UNL*, a faculty newsletter, featured a condensed version of "The Classroom Climate: A Chilly One for Women?" (Hall & Sandler, 1982), including suggested procedures for evaluating classroom climate by using tape recordings, surveys, or observational techniques with guiding questions and self-check quiz.

B. During the same week, two sessions of a workshop entitled "Equity in the Classroom" were conducted by a team of two leaders: John Noonan, a member of the AAC Advisory Committee that generated the original

AAC report; and Natalie Porter, a psychology professor who had researched the behavior of women in groups. This workshop was designed to increase awareness about women in groups. The following activities were used:

(1) Get-acquainted activity
(2) Presentation on the effect of non-verbal behaviors used by professors.
(3) Small group exercise addressing the "messages about women in our society" and how these affect students, faculty, and administrators, and how participants viewed differences in teaching women and men students. Shared ideas were discussed among the entire group.
(4) A videotaped discussion of women graduate students at UNL illustrated their experiences as students related to the AAC report. Discussion of various points occurred throughout the taped sequence.
(5) Using an audiotape and transcript of a professor/student interaction, participants practiced identifying biased behavior and suggesting desirable changes.
(6) Major ideas arising from the workshop were reviewed.

C. A luncheon discussion open to all interested faculty was organized on the "Learning climate for women students."

D. Individual consultation was offered to faculty participating in these programs.

Although no overall evaluation of the impact of these programs was conducted, the following results were observed:

—Ratings for workshops were strongly positive.

—Faculty were initially reluctant to believe that women were treated differently in the academic setting. This attitude shifted to "maybe it does occur" to "I'll do a self-check to see if I do these things." Women as well as men acknowledged recognition and increased awareness of behaviors they had not previously considered. Some suggested that these subtleties were not as important as overt sexual harassment and that attention to that issue should come first. None asked for help in reviewing their behaviors, but most indicated their intentions to analyze themselves.

During the two year period following the "Chilly Climate" programs, TLC instructional consultants became more sensitive to observing behaviors demonstrating equitable treatment of women students. Enlightened faculty generally have awareness that unequal treatment occurs in their own classrooms. No conscientious faculty member wants to treat women students differently; therefore, feedback suggesting that they do is an extremely sensitive kind of consultation. Principles of good supervisory practice suggest that opportunities for the individual to "discover" this problem should be designed and that feedback should be descriptive and free from judgmental statements. Perhaps the consultant and client could agree before observation that an audio or video recording of class would be useful. The consultant and client could replay the tape and apply a descriptive instrument to record behaviors. A comparison of results should provide an opportunity to replay segments and clarify what was happening. Frequently, awareness is enough to change behavior, because most faculty already value equitable treatment.

A second effort to encourage faculty to maintain awareness of classroom equity was planned in March 1985. Again, efforts were coordinated with the UNL Chancellor's Commission on the Status of Women. Resource people were again brought in to work with various campus audiences, including faculty, administrators, graduate and undergraduate students.

Two faculty workshops were designed by Myra and David Sadker of American University to present research on equity in instructional settings and to train faculty to use an objective observation instrument that they could apply to their own classrooms. Skill in using the instrument was developed by practice with videotaped examples.

Again, the workshops were rated very positively by participants. Faculty attitudes expressed were no longer "Does this really exist?" but had changed to "How can

I recognize and change this behavior?"

The extent to which these activities can change the existing climate for women on a campus is yet to be seen. At the least, they represent a beginning awareness and a gradually evolving attitude about the faculty role in establishing an equitable climate for all.

CONCLUSIONS

Faculty instructional developers have a responsibility to address the problem of inequitable treatment of women in the college classroom. When a majority of the college population is female, the education of women becomes central to the postsecondary enterprise. Society cannot afford to have less than optimum use of the talents that educated women can bring to it. As faculty developers, we must find ways to help faculty provide a classroom climate which will provide equal opportunity for women to be successful.

APPENDIX

Self-Check Quiz

Circle the response which is most accurate for you in your classes:

A = Always
F = Frequently
O = Occasionally
R = Rarely
N = Never

	A	F	O	R	N
1. Are you less likely to call upon women students directly than men students?	1	2	3	4	5
2. Are you more likely to remember the names of men students than those of the women?	1	2	3	4	5
3. Are you as likely to choose women as men for student assistants and to give them the same responsibilities?	1	2	3	4	5
4. Are you more likely to contact men graduate students when publication, research and other professional opportunities arise?	1	2	3	4	5

APPENDIX (Continued)

	A	F	O	R	N
5. Do you tend to ask women and men students the same kinds of questions?	1	2	3	4	5
6. Do you encourage women as much as men to think for themselves?	1	2	3	4	5
7. Do you give women students as much informal feedback, encouragement or praise as men for their academic efforts?	1	2	3	4	5
8. Do you interrupt women more often than men during class discussion?	1	2	3	4	5
9. Do you listen seriously to views of women as well as of men?	1	2	3	4	5
10. Do you tend to make more eye-contact with men when asking a question of the whole class, thus "recognizing" men and inviting responses from them?	1	2	3	4	5
11. Do you assume that women students are uncertain about what they want to say because women may tend to state their classroom comments hesitantly or in "overly polite" fashion?	1	2	3	4	5
12. Do you discourage women from enrolling in traditionally "masculine" majors or from the "harder" subspecialties?	1	2	3	4	5
13. Do you use sexist humor to "spice up a dull subject" or make disparaging comments about women as a group?	1	2	3	4	5

Scoring: Total the numbers you have circled and check your level of behavior.

13-25	You are living in the past and are in critical condition; waste no time; begin today to correct your ways.
26-38	Collect some observational data; you need improvement.
39-51	Your intentions are good; keep working at equal considerations.
52-59	You are obviously aware and approaching excellence.
60-65	You are exceptional; keep up the good work!!!

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Faculty Exchanges as a Means of Renewal and Development

Phyllis Zweig Chin
Humboldt State University

Currently, many colleges and universities are experiencing a period of steady-state or decreased enrollments. Gone are the days when departments regularly hired new faculty members who provided a steady influx of new ideas, energy, and enthusiasm to departments. Faculty members now tend to stay longer at one institution and often experience "burnout" as they continue to teach similar courses at the same place for long periods of time.

Some faculty members have sabbatical leaves or temporary jobs that allow them to spend time away from their home institutions. Many others are not eligible for sabbatical leaves or cannot afford to live on the less than full pay provisions of such leaves. Many professors foresee long periods of time teaching at the same place with little likelihood of new colleagues to bring new ideas to them. Many different faculty development ideas are being tried in an attempt to keep professors feeling enthusiastic about their teaching and academic growth. This paper is a personal account of one form of faculty renewal, namely, trading jobs.

During the 1983-84 academic year, I traded jobs with a colleague at another institution. I had been teaching for nine years in the Mathematics Department of Humboldt State University, where I was a tenured Associate Professor. For various personal reasons, I had decided I would like to spend a year in Florida. In Spring, 1982, I wrote a letter to the chair of each mathematics department of a university or college in Florida asking if anyone would be interested in exchanging jobs and living quarters with me for 1983-84. I received inquiries from about six people. None of them had what I considered adequate housing for my family. I was beginning to think about renting a home and just exchanging jobs when, in Fall, 1982, I received a phone call from someone at the University of Central Florida in Orlando asking if I was still interested in faculty exchange. As we began discussing details, this seemed like an ideal trade for us. Our institutions had similar teaching loads and expectations, and the two of us had similar homes and families.

Having established between the two of us a desire to trade jobs, the next step was to arrange administrative details. We exchanged resumes and sample student evaluations, which both departments used as a basis for judging whether to accept or reject the trade. This approval process was very informal, especially compared to the screening procedure followed before a potential new faculty member is offered a job.

Next, each of us needed to obtain administrative approval for our exchange. Humboldt State University has had several people involved in faculty exchanges in the past and has developed a very simple letter of agreement for such exchanges. (See Appendix for a sample of this letter.) Within two weeks, all signatures had been obtained on both campuses and only informal personal arrangements remained. In our case, we exchanged homes and contents intact with each family bringing only clothing, a few personal possessions, and its own automobile, which each family chose to drive cross-country.

Each of us found the year very renewing. We had an opportunity to bring our areas of expertise to new colleagues and to be exposed to many new ideas. Seeing different ways that the two departments and universities handled various academic and administrative situations gave us new ideas to take home to our institutions. Both of us had been heavily involved with committee assignments, academic advising, and administrative tasks on our campus. While we were welcomed wholeheartedly into our host departments, we participated in non-teaching assignments by choice only. This made our work loads slightly more enjoyable than what we had been used to carrying. In my own case, I was able to devote a great deal of time to joint mathematical research with two colleagues in my area of interest at the University of Central Florida. Because I am the only one in my particular field at Humboldt State Universtiy, this collaboration was a tremendous extra benefit of the exchange.

The exchange was a good experience for our families as well. Each of us has two children. All saw new parts of the country in our travels as well as in our new homes. Three of the four children made friends easily at their new schools. One felt isolated and lonely for several months but wound up forming some very close friendships. At the end of the year, all concerned were pleased to return to their "own" homes and friends but were also sad to leave their "temporary" homes and new friends. Having experienced the joy and intellectual stimulation of a faculty trade once, I would be pleased to turn around and arrange another one for 1985-86. My family, however, will probably convince me to stay settled down a few more years before I leave again.

Financially, a faculty exchange is perhaps one of the least expensive ways to get away for year. There is no loss of salary or benefits. I am not a tax consultant, and I suggest that anyone proposing to make a faculty exchange should check with current government publications or a tax expert. According to the IRS (1981, pp. 62-3), faculty exchange constitutes a temporary assignment if it lasts less than one year; that resulted in significant tax advantages in 1983-84.

Anyone involved in a faculty exchange during the spring should be sure to take or send all relevant tax records to his or her temporary home for income tax filing. Both of us involved in this exchange inadvertently left some records at home and needed to call the other to find and send some important information.

Although I arranged my own exchange and was guided primarily by geographical considerations, there are other ways to set up a faculty exchange. For example, The National Faculty Exchange (NFE) is a program funded by the Exxon Educational Foundation and institutional member fees to assist in arranging faculty exchanges. According to their 1984-85 Exchange Opportunities booklet:

> NFE is a centrally directed, campus-based, membership program which facilitates opportunities for the exchange of a faculty and staff among colleges and universities in the United States and its territories. The variety and number of opportunities in higher education across the United States, coupled with the cultural and geographic diversity in this country, provide countless combinations of exchange environments.
>
> NFE, unlike clearinghouses or regionally isolated exchange programs, is national in scope and centrally brokers faculty and staff through a pool which accommodates multi-lateral replacements. This approach eliminates the need for a campus:campus exchange of individuals. A replacement for an outgoing exchange participant is likely to come from a campus other than that receiving the exchangee. Applications are processed using procedures and timetables common to all member colleges and universities.
>
> The National Faculty Exchange provides a great deal of flexibility in placements, exchange periods and assignments. Administrative personnel may often find time periods of several weeks or months more manageable than the semester or year exchange more appropriate for faculty members. Assignments may be teaching, research, administrative, consulting, observation, or any combination thereof. In most cases, the exchange participant remains on the home institutions's salary line.
>
> NFE is funded by the Exxon Education Foundation to encourage interchange of ideas among professionals at institutions of higher education by increasing the mobility of faculty and staff. NFE member institutions, realizing

> the value of investing in their professional personnel, are committed to assisting faculty and administrative staff to pursue professional growth through exchange. (National Faculty Exchange, 1984, p. 3)

Several professional organizations, including the Mathematical Association of America, also maintain lists of people interested in faculty exchanges. If your professional organization does not, it may still be possible to publish a notice of interest in a national or regional newsletter.

While this article has focused primarily on the benefits available to an individual through a faculty exchange, I would like to conclude with a statement from the NFE regarding benefits to the institution.

> For the institution, exchange offers the opportunity to schedule new courses or offer existing courses with new faces and varied approaches. The exchange of ideas between the participant and his/her new colleagues may spark new instructional or administrative approaches. Introduction of new faculty and staff may provide an institution with the opportunity to create new programs or services, solve administrative problems, improve existing programs, or identify approaches to areas of reorganization, retraining or retrenchment.
>
> Other advantages for the institution may include developing projects and working relationships with other colleges and universities, accessing a pool of prescreened faculty and staff as alternatives to short-term hiring situations, increasing staffing opportunities, providing for mobility of faculty and staff while retaining them as continuing employees, and expanding opportunities for sabbatical and other leaves by replacing the outgoing individual with an exchange counterpart in the same or another discipline.
>
> As one component of an institution's faculty and staff development program, the National Faculty Exchange introduces new people with new ideas into academic programs, faculty and student services, and the administrative structures of the institution. In addition, it provides ways for faculty and staff to have an experience which will stimulate them to discover and try fresh approaches to professional tasks. (National Faculty Exchange, 1984, pp. 3-4)

APPENDIX

Agreement for Exchange of Faculty

In consideration of mutual benefits to be gained by exchange of faculty, Professor __________ , __________ , and Professor __________ , Humboldt State University, agree as follows:

1. __________ will serve as a full-time faculty member at Humboldt State University during the ____ - ____ academic year, under the direction of the Chair of the Department of __________*, and other duly designated officers of Humboldt State University, and subject to the regulations governing faculty at said University.
2. __________ will serve as a full-time faculty member at __________ during the ____-____ academic year, under the direction of the Chair of the Department of __________ , Dean of the __________ , and other duly designated officers of __________ , and subject to the regulations governing faculty at said University.
3. __________ will pay __________ his full salary for the ____-____ academic year, in accordance with the established salary schedule at __________ , just as if he were on full-time duty at said University/College.
4. Humboldt State University will pay __________ his full salary for the ____-____ academic year, in accordance with the established salary schedule at __________, just as if he were on full-time duty at said University.
5. All privileges and benefits of faculty status, including credit towards sabbatical leave eligibility, salary increases, and the like, shall continue to be accorded both participants of this exchange as if each were in continuing service at his respective home institution.

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*"Program Leader" and "Division Chair" will be substituted as appropriate for Department Chairs and Deans as indicated. (A revised form should be prepared for this purpose.)

6. __________ will maintain appropriate records on such technical personnel matters as sick leave usage, accrual of vacation, and accrual of retirement credit for __________ .
7. Humboldt State University will maintain appropriate records on such matters as sick leave usage, accrual of vacation, use of personal holiday, and compilation of retirement credit for __________ .
8. Both faculty participants to this agreement agree to pay for all transportation costs and any personal expenses incurred by virtue of their participation in this exchange.

(Signed)	Date	(Signed)	Date
School/College Dean	Date	School/College Dean	Date
Vice President, Academic Affairs		Appropriate Univ. Administrator	
Date		Date	

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Buyouts and a Career Transition Program as a Response to Retrenchment

Carol A. Paul
Fairleigh Dickinson University

INTRODUCTION

Between 1980 and 1985, Fairleigh Dickinson University (FDU) experienced an enrollment drop of approximately 25 percent, from 20,000 to 15,000 students. As an independent institution with three campuses in northern New Jersey and in close proximity to New York City, the enrollment drop was credited to the decline in the number of 18-year-olds available to attend college, increased competition from nearby state institutions, and FDU's climbing tuition rates.

Composed of eight colleges, FDU experienced the greatest enrollment declines in its College of Education and in the three four-year liberal arts and sciences colleges, all well-staffed with tenured faculty members. Clearly, faculty cutbacks were mandatory if the University were to survive and flourish, but FDU, like so many other post-secondary institutions, had never had to terminate the employment of a large number of faculty members.

The University's collective bargaining agreement did

Copies of buyout plan may be obtained from the author.

contain a security-of-employment article, but it had never been used to reduce staff and contained no provisions for buyouts. Knowing full well the seriousness of issuing terminations to faculty, the administration developed two mechanisms: a buyout program was created and implemented, and a career transition program was formulated and instituted.

IDENTIFYING DISCIPLINES ELIGIBLE FOR BUYOUTS

For several years, FDU has been projecting credit hours per semester and the number of full-time equivalent faculty (FTEFs) needed to teach these credit hours. The projections have been highly credible since the error factor has been +/- one percent. In the fall of 1984, projections were done once again, concurrent with the arrival of a new president. Although he faced serious faculty resistance through collective bargaining, the trustees agreed on the need to cut back on faculty in overstaffed disciplines. The data on FTEFs clearly identified the overstaffed disciplines: biology, fine arts (speech, theatre, art, and music), foreign languages, health/physical education, sociology/anthropology, social work, and education. A general notice was sent to faculty in these disciplines, noting the overstaffing and inviting them to consider a buyout. Every faculty in the affected disciplines who applied for a buyout received one. Faculty from other disciplines, such as accounting, also applied and were bought out if they did not need to be replaced.

BUYOUT PLAN AND THE BUYOUTS

Between June and September, 1984, several faculty in overstaffed disciplines sought buyouts. Individual faculty had occasionally requested buyouts before that, and the administration had responded on an *ad hoc* basis. Even without any detailed plan, the administration had tailored appropriate terms and conditions for five of these faculty.

At the same time, the collective bargaining agreement with faculty members was being negotiated, but a settlement was not reached until December 17, 1984. It contained a detailed buyout plan and a revised security-of-employment article that ensured buyout processes and procedures prior to issuing terminations.

Features of the buyout agreement are: 1) availability to tenure faculty in overstaffed disciplines; 2) completely voluntary; 3) tenure rights relinquished; 4) available January 25 or August 15 each year; 5) entitlement is to twice the participant's current base, distributed at his or her option over a period not to exceed five years; 6) tuition grants available to participant and family until programs completed; 7) entitled to health insurance for the two years following resignation; and 8) part-time teaching at FDU available.

At the time FDU introduced its comprehensive buyout plan in 1984, there were 507 tenured faculty. When the first round of buyouts was completed on March 1, 1985, there were 430 tenured faculty. Of the 77 cutbacks, 73 came from buyouts, the others from retirements or resignations. Since the 73 does not include the five buyouts in the summer of 1984, the total number of buyouts between June, 1984, and March, 1985, then, was 78 faculty.

The ranks and ages of the faculty who were bought out are identified in Table 1.

TABLE 1

Rank and Age Distribution of Faculty Buyouts

	Age							
Rank	Under 40	40-45	46-50	51-55	56-60	61-65	66-70	Total by rank
Professor	0 -	2.6% (2)	7.7% (6)	2.6% (2)	7.7% (6)	26.9% (21)	10.3% (8)	57.7% (45)
Associate professor	1.3% (1)	3.8% (3)	5.1% (4)	5.1% (4)	3.8% (3)	6.4% (5)	2.6% (2)	28.2% (22)
Assistant professor	1.3% (1)	3.8% (3)	3.8% (3)	3.8% (3)	0 -	1.3% (1)	0 -	14.1% (11)
Total by age	2.6% (2)	10.3% (8)	16.7% (13)	11.5% (9)	11.5% (9)	34.6% (27)	12.8% (10)	100% (78)

Clearly, the buyout plan was the most attractive to full professors over 60 years of age. Including fringe benefits, payments to individual faculty members receiving a two-year buyout ranged from a low of $43,000.00 to a high of $123,000.00. The overall cost to the University was over $5.4 million dollars. Though this is a great deal of money, the plan forestalls terminations and the expensive litigations that normally result.

CAREER TRANSITION PROGRAM

The administration recognized that some faculty members who chose a buyout might select a new career direction, while others might see it as a transition to retirement. In either case, faculty might need counseling and/or outplacement services. Because the University already had a Professional Development Program, that program assumed responsibility for those additional services.

For the previous two years, the Professional Development Program (PDP), headed by a tenured professor, had been providing retraining grants to faculty members, assisting people applying for retraining sabbaticals, and facilitating career transitions. To add outplacement services to the above, the Director worked with the administration to screen and select a nationally known and successful outplacement firm to provide assistance.

Recognizing the unique qualities of members of the higher education community, the University arranged for the outplacement firm to provide training for the PDP staff, who are faculty peers, and to offer workshops for faculty. These workshops consist of eight, half day sessions as follows: 1) orientation to the program; 2) self-assessment (two sessions); 3) determining career goals and objectives; 4) preparing a resume; 5) negotiating a job (two sessions); and 6) individual job counseling.

FDU is using an outplacement organization with a national reputation. Its fee is $1,000 per day. Since the eight sessions represent four full days, our cost is $4,000/group. Two groups participated in the Career Transition Program during the spring of 1985. In addition, a group of professional staff made up a third group.

The PDP staff also conducts initial interviews of participants and provides individual counseling throughout the outplacement process. The staff offers a variety of workshops for retirees as well, including planning for a secure retirement, attitude adjustment, developing support networks, maintaining professional identity, and assessing alternative career opportunities.

Of the most recent 73 buyouts, 61 have been interviewed by the Professional Development staff; the remaining faculty members did not respond to memos or telephone messages. Thirty-one faculty members wished to participate in outplacement services, while another 10 were interested in developing consulting skills and setting up their own businesses.

Since the spring was the first semester of this program, it is too early to know how many faculty members will find a new career. Of course, the PDP staff intends to follow up on each person carefully in order that the program can be evaluated. Feedback so far indicates that the program represents a significant support system for faculty members making difficult transitions.

CONCLUSION

Because of national demographics, other institutions may need to develop and implement similar buyout plans. If such is the case, it is important to recognize that a buyout plan alone is not enough. A support group, such as our Career Transition Program, is also needed. From the University's experience, the exclusive use of external outplacement services that typically serve the corporate world is not the best choice for two reasons: it is costly, and academics find it difficult to confide in the personnel usually found in that type of high-powered organization and to trust them with their career futures. An alternative is to set up your own program, as FDU has done.

Declining enrollment and retrenchment are very difficult problems to confront. FDU's experience, though painful, has been made more humane through the buyout and outplacement programs.

PART III
INTRODUCTION

The essays contained in this section of the book deal with teaching and learning in a direct and uncomplicated fashion. We expect that you will copy some of them to distribute to faculty and students; others you may want to modify to fit the particular needs of your institution. Or you may just want to carry away some good ideas to try out in your own classroom.

LuAnn Wilkerson's essay starts off the section with a consideration of the principles lying behind effective clinical education. Like the other authors who have contributed to this section, she builds her paper on an extensive body of research on teaching and learning. Thus, although she intends her remarks for medical school faculty, her suggestions apply equally well to those teaching in nonclinical settings. In her essay, "It Ain't Necessarily So," Marilla Svinicki tackles what is probably the most popular form of instruction in all educational settings, the lecture. It is particularly easy, she hints, for the lecturer, who is giving a solo performance with little or no assistance from students, to forget all about learning research. Reminding faculty of the need to review their assumptions about their students and how they learn, Svinicki gives helpful pointers for planning lectures. Both Wilkerson and Svinicki strike a common chord—no matter what the setting is, no matter what approach has been chosen, we must always remember how students hear, process and structure information, think about it, and apply it if we are to be effective teachers.

Robert Pierlioni addresses particular student needs that may not be immediately obvious to the instructor. He suggests that students may not be "learning" because they do not know how to manage their time or how to study for tests and exams. Although Pierlioni works with health professions students and has developed these handouts for them, we suspect his sensible recommendations would be useful for other undergraduates as well.

In the final part of section three, we have gathered materials prepared by University of Rhode Island faculty for a workshop called "Teaching Students to Think." Bette Erickson's introduction reminds us explicitly that the purpose of education is to teach students how to think critically and creatively and how to solve problems, rather than how to regurgitate information that they have heard in class or read in their textbooks. She explains how you might plan a similar workshop for your campus and offers advice based on experience at the University of Rhode Island. At the end of the section are examples of papers presented by the University of Rhode Island faculty at these workshops. They are filled with stimulating ideas to try out in the classroom and would make excellent handouts for faculty members.

Learning in a Clinical Setting

LuAnn Wilkerson
Harvard Medical School

In 1975, Ludwig W. Eichna, M.D., former chairman of the Department of Medicine, State University of New York, Downstate Medical Center, returned to medical school as a full time student because he was troubled by the problems that he perceived in medical education. He hoped that by assuming the role of a student he would be better able to understand the nature of the problems and to assist in their solution. The conclusions drawn from his experience were published in the *New England Journal of Medicine* in 1980. His description of learning as it occurs in a clinical setting may be somewhat overdrawn, but the substance of his observations should be familiar to most faculty who teach in clinical settings. It prompted my reconsideration of what the literature on student learning could offer as guidelines for the development of optimal clinical experiences for students.

> Learning is a thinking, problem-solving process that requires time. Medical-school education today involves too little thinking and problem solving. It consists largely of too much fact in too little time, which is maldistributed to

> boot. The emphasis is on the accumulation of facts. Fact is king. Students come to medical school inculcated with this concept by previous education, especially by college, where facts and examinations are a way of life. The gobs of facts delivered during the science years leave little time for thinking. Students detest it, yet by habit they gobble the facts. Disillusionment results. Cramming does not stimulate students to question, to appreciate the beauty of biological science, the orderliness, the organization, the wonderful integrations and homeostases of the glorious biological machine that is life. There is no time to think, to wonder—just time to memorize facts. The clinical years perpetuate nonthinking. Inordinate amounts of time are spent in mechanical "doing". Operating-room work, repetitive ward rounds, and nights and weekends on duty leave little time for thinking. Fatigue, somatic and cerebral, dulls the will and the edge of thought. It is a mistake to hold that bedside teaching is necessarily equated with thinking and problem solving. Some undoubtedly is, but so much of it is mini-lecturing, noneducational chores, and the reflexive ordering of test after test.
>
> The faculty is not solely at fault. Students are also at fault, and the faculty does little to correct them. Ingrained by previous schooling with the habit of setting the facts to pass the examination, students stay away from thinking activities.
>
> Clinical years continue this nonthinking, requiring only a superficial history, a perfunctory physical examination, a scant analysis, a reflexive listing of all differential possibilities, and then the process of writing for multiple tests for each differential diagnosis. Textbooks are a problem: 2000-page tomes weighing 10 pounds, they glorify the myriad facts. Note that textbooks do not present problems to be solved.
>
> Let me be clear and not misunderstood. Facts are essential. Problems cannot be solved without the sequential arrangement of facts. But in medicine, the answer may not be there even after the facts are arranged. Students must learn to handle uncertainty: that too is medicine. Emphasis on facts does not teach this aspect of medicine any more than it teaches problem solving, and every patient presents a problem to be solved. It is vital to replace the concept of learning as fact gathering to pass examinations with the concept of education as inquisitiveness, sequential thought, problem solving, and the satisfactions that result. (Eichna, 1980, p. 729)

Principles derived from research in behaviorism, cognitive psychology, and social learning theory illuminate under what conditions students learn best. I have extracted from many such principles those that I have found most applicable in my work over the last several years with clinical education. As you consider the five principles, you will need to understand those assumptions that underlie my description of clinical learning. First, clinical learning occurs in numerous settings. It is not restricted to systematic, planned sessions. It is often impromptu. It can occur in the hallway, at the bedside, at the nurses' station, during rounds, in quiet times alone. Everyone in the clinical setting is a potential learner and a potential teacher. Second, I agree with Eichna that the goal or purpose of clinical education is to help students to learn how to collect data, interpret and synthesize their findings, formulate alternative plans, and evaluate the effect of actions taken. The acquisition of knowledge is an essential aspect of this purpose, but to what end? To use in solving problems. In short, the goal of clinical education is the teaching and learning of clinical problem solving.

The following principles may seem no more than good old common sense. And they are. They do, however, have a base in research on learning.

MODELING

Principle No. 1: *A student is more likely to learn if he or she is presented with a model performance to watch, analyze systematically, and imitate.*

Most of us have had our professional role models, our mentors, our heroes or heroines, who have contributed to our image of the type of practitioner, teacher, and researcher we want to be. This type of learning by modeling occurs continuously with all aspects of behavior being watched and imitated, sometimes unbeknownst to us.

However, the kind of modeling I am talking about here goes beyond the mere emotional identification learners make with their models. What this principle suggests is that modeling should be a purposeful activity utilized to demonstrate those skills, behaviors, or ethical standards that we wish students to acquire (Bandura, 1977). Students should be given concrete and systematic opportunities to observe good models and to study the behaviors that make them effective.

Let me illustrate the difference between purposeful use of modeling and the type in which we say "He/she is a really good Doc," knowing in our guts what we mean, but not being able to put words to it. Several years ago, I was speaking with a medical resident about his experience in a new teaching hospital. In describing a number of the faculty members, he paused, "Dr. Gabriel has just been terrific to work with. His diagnostic skill is excellent and he seems to know just what to do in even the most unusual cases. The only problem is," the resident continued, "I can't see how he reaches these difficult diagnoses. I wish he could be persuaded to think out loud. Then maybe I could begin to organize my thinking about the problem in a similar way."

This is an example of the unintentional use of modeling in the teaching setting. What the learner is requesting is a more intentional, systematic use of modeling. In a 1964 study of clinical medical education, Reichsman found that students were generally exposed only to the instructor's solution to a problem and not to the reasoning process that led to that solution.

When teaching effectively through modeling, the teacher is involved in three activities:

1) demonstration of a skill, behavior, or attitude
2) the labeling of important aspects or components of the demonstration, and
3) the discussion or analysis of the criteria to be imitated, not just the outcome to be achieved.

The old adage of "see one, do one" might be revised to read, "see one, understand what it takes to do one, do one".

> We all need heroes; . . . And we can most profit from these heroes at a time when we still believe in them—that fragile

> time between stages of maturity when, if only for brief interval, we are exposed to a fresh and stimulating personality who has an easy and firm control over our new endeavor and wishes to let us in on the secret. It is a precious time, a time when we are prepared to believe and desperately want to listen. (Ratzan, 1982, p. 1422)

ACTIVE, APPROPRIATE PRACTICE

I don't know if you like to watch baseball, but I could spend hours in the ballpark. I can appreciate the skills involved. I can cite the rules being followed. I can even describe the strategies to be pursued at different points in the game—but I cannot begin to play baseball well enough to join a sandlot team. What I lack is practice.

Principle No. 2: *The student is more likely to learn when provided with the opportunity to practice actively the skills or thought processes to be learned.*

Stritter (1975) asked medical students at two schools to identify characteristics of instructors whom they thought were most helpful in supporting clinical learning. The most important items selected by the 265 students responding were those related to the opportunity for active participation in the learning process:

1) Provides time for discussion and questions.
2) Answers carefully and precisely questions raised by students.
3) Provides students opportunities to practice both technical and problem solving skills.
4) Encourages students to raise questions.
5) Gives every student a chance.

Practice, in order to contribute fully to student learning, should be active and appropriate.

Active: Activity is certainly a part of the clinical setting. A lack of active participation would seem to be more of a problem in the classroom setting. However, some evidence suggests that active participation can be lacking in the clinical setting as well. In a study of faculty/resident/student interactions in a medical clerkship at the

University of Illinois Medical Center, Foley, Smilansky and Yonke (1979) found that in a variety of clinical teaching situations, students talked only 5% of the time. Residents talked 37% of the available time, faculty, 57%. When students were asked to participate, they were primarily asked questions requesting them to supply factual information, usually concerning data from the patient's chart. Very few questions required students to discuss their reasoning, propose alternatives, or suggest implications for action, that is, to practice actively medical problem solving. The recent report on medical education by the Project Panel on the General Professional Education of the Physician (GPEP) recommends that students "be active, independent learners and problem solvers, rather than passive recipients of information" (1984, p. 12).

Appropriate: In order to promote learning most effectively, active practice must be relevant to what is to be learned. The filling of hours with activity that may not relate to the skills, knowledge, or thought processes to be learned does not constitute adherence to this principle. I do not mean to imply that students should not do the "scut work" for which clinical rotations around the world are famous, only that time be left for participation in those activities that directly involve them in honing their skills at clinical problem solving.

A great deal of research has been conducted on the effect of practice on learning, particularly in the area of skill learning. Several teaching approaches have been found to increase the likelihood that students will learn from practice:

1) The student needs to know what he or she is to learn from the clinical experience.
2) The student needs brief guidance during the early periods of practice. Guidance is important because some evidence suggests that people actually learn the errors they commit and tend to repeat them in later trials.
3) During practice, the student needs help in discovering critical cues that will allow him or her to evaluate

performance. How does it feel when it is right? What immediate signs indicate correct performance?

4) During periods of practice, the student needs knowledge of results.

In order to provide active and appropriate practice, the teacher may need to consider resources that will meet learning goals not represented by the daily flow of cases. Simulated cases consisting of paper and pencil problems, videotapes, charts, or paid actors can allow careful observation and evaluation in a risk-free setting. Standardized problems allow the teacher to be certain that the student has been exposed to essential cases or important aspects of particular problems. The standardized case also leads to better group discussions. Each member of the group shares a common experience and the leader can plan specific objectives for discussion. Simulation materials should maintain fidelity to the clinical setting to maximize transfer to "real" problems (Frederiksen, 1984).

The posing of questions that require the students to analyze and synthesize data is another method of encouraging active practice. In a study of clinical teaching (Medio, Wilkerson, Maxwell, Cohen, & Reinhard, 1984), we observed faculty members using three types of questions: asking for clarification (e.g., "How long has he been in the hospital?"); asking for recall of knowledge (e.g., "What are the possible causes of azotemia?"); and asking for problem solving (e.g., "What do you think is causing the problem and why?"). Clarification questions accounted for slightly less than half of all of the questions posed by faculty members during clinical teaching sessions. Questions designed to promote interaction around analysis and evaluation of problems accounted for only 20% of the questions asked. More of the latter type are needed to promote learning through active participation in problem solving.

Increasing active participation also involves a transfer of responsibility from the teacher to the learners. Data from a study of clinical medical teachers at the University of North Carolina suggest that "general movement from a directive to a consultative approach to instruction, with increasing delegation of the teaching function to others in the group, can be an effective strategy" for the clinical teacher (Mattern, Weinholtz, & Friedman, p. 1130).

Finally, the instructor can encourage active, appropriate practice through direct observation of student performance in classroom and clinical settings. Both physical and mental activity should be the focus of observation and guidance if practice is to instill accurate, efficient performance.

PLEASANT CONDITIONS

Principle No. 3: *A student is more likely to continue learning if instructional conditions are pleasant.*

This does not mean that clinical training should be all fun and games. What it does suggest is that learning has an emotional component.

Studies on long-term memory have found that information with a positive emotional association is remembered better than that with negative or neutral associations. The emotional responses of the student to the learning environment, the teachers, and the situation influence level of motivation and desire for future learning. When faced with continuing unpleasantness, the student may work to avoid the situation. If the unpleasantness is combined with frustration or punishment over a long period of time, the student may actually develop maladaptive behaviors. An old adage reads: "Things surrounded by unpleasantness are rarely surrounded by people."

Initial success is one aspect of a positive learning environment. If students experience great difficulty when beginning a new subject, their investment of energy and effort may be minimal for the duration of the course of study. In order to determine what expectations are appropriate, the teacher needs to assess what the individual learners have brought to the course. What prerequisites do they have? What do they already know about the discipline? What procedures can they already perform? What do they want to learn? Since each student will be different, a brief conversation on the first day may assist the teacher in setting the appropriate level of responsibility and challenge. Students should be challenged to struggle with new content but that struggle should provide some success and not lead to undue frustration and anxiety. When anxiety levels are too high, learning may be blocked. Conversely, when anxiety is non-existent, motivation may lag (Eysenck, 1979).

Faculty members may also find that committing one of the Seven Deadly Sins of Teaching (Eble, 1983) sets an unwanted tone for the learning environment—making it ARID or giving students the HiVeS:

A Arrogance
R Rigidity
I Insensitivity
D Dullness
H Hypocrisy
V Vanity
S Self-indulgence

What factors can be used to contribute to the building of positive learning conditions? First, we can be enthusiastic about our subject and the opportunity to teach. In a study I did in 1979, enthusiasm was the teaching behavior most highly correlated with student assessment of overall teaching effectiveness. We demonstrate enthusiasm by: preparing for teaching; being available; indicating interest in the topic and the students; conveying enjoyment while dealing with students; demonstrating sensitivity to patients; being friendly; and listening carefully. Stritter (1975) found that students rated a positive attitude toward teaching as the second most important set of clinical teaching skills.

Second, we can set challenging tasks for students that allow for initial success and require the exercise of clinical reasoning.

Third, we can make ourselves accessible to students. Alumni from the state colleges and universities of California cited contacts with faculty outside of class time as the most important aspect of their college learning experience

(Wilson, Gaff, Dienst, Wood, & Bavry, 1975).

CLARITY

Principle No. 4: *The student is more likely to accomplish intended learning if told in a clear manner what is to be learned and why.*

This principle implies that, as teachers, we have decided what it is that students should learn from us. We have identified the knowledge, behaviors, and attitudes that we wish students to develop as a result of our instruction.

It also implies that students can increase their learning when they know what they are expected to learn, its relevance to their professional lives, and how the sequence of activities will enable them to learn. If these factors are explained and understood, it is more likely that students will learn what we wish them to learn. The GPEP report (1984) describes the failure of clinical faculty members to specify clearly the knowledge, skills, and attitudes that students should acquire on their rotations.

The field of cognitive psychology, through its emphasis on the understanding of covert mental activity as a key to human behavior, offers some perspective on the importance of this type of clarity. Two mental activities—attention and memory—when manipulated, affect student comprehension and retention (Fuhrmann & Grasha, 1983).

1) *Attention*: Before we can assimilate any information, we must attend to it. The mind tends to focus on a precise task and peripheral stimuli, while noticed, are not processed very well. Unless we structure the process of what gets paid attention to, each student will perceive the learning somewhat differently on the basis of personal interest and previous experience.
2) *Memory*: We act upon stimuli, putting them into a form that we can "hold on to." We attempt to extract key features and basic patterns, to match the new information to previous learning or experience.

The learner is an active participant in the process of memory storage. We can increase the "accuracy" of learning by providing links, suggesting relationships, providing familiar comparisons, identifying relevance to future practice.

Clarity in teaching is that process of deciding what should be taught and sharing those intentions with students. Clarity means matching learning opportunities to the purposes you are pursuing. When informed of the purpose of an activity, an assignment, a case presentation, or a teaching round, students can better focus their attention on the important details to be learned. Mattern et al. (1983) identified the most effective strategies for case discussion teaching as maintaining the focus of discussion and clarifying important clinical issues. Eliciting the thoughts of others in the group and encouraging students to raise questions were also found to be effective means of guiding clinical discussions. Clarity also means describing the relevancy of what is to be learned to help students in organizing the information or experience for storage in long term memory.

FEEDBACK

I mentioned earlier that the opportunity for active participation is a key principle of learning in the clinical setting. However, practice without feedback or knowledge of results does not necessarily lead to accurate learning.

Principle No. 5: *Accuracy in learning is increased when the student receives information on what he or she is doing correctly or incorrectly.*

Twenty years ago, in an article in the *Journal of the American Medical Association*, two Columbia University physicians described the failure of clinical teachers to observe medical students performing the complete physical examination prior to graduation (Siegal & Wertheim, 1962). The lack of clinical supervision remains a problem in clinical education today (Project Panel, 1984). Foley and Smilansky (1980) describe one frequent pattern of clinical supervision:

> After observing the instructor demonstrate a procedure, students are sent to practice by themselves. They are usually not provided with a picture of the precise steps involved in the procedure or with time for the supervised practice that guarantees they are performing it in the correct manner and sequence. (p. 71)

Clinical supervision is, however, one of the skills identified in numerous studies of clinical teaching reviewed by Irby (1978) as an important factor in effective teaching and learning. Clinical supervision involves: being accessible and willing to help students; observing student performance; and providing frequent indications of the quality of performance.

Although both negative and positive feedback can assist the learner, factual, descriptive, positive comments have been found to have the greatest impact on improved student performance. Compare these two comments by a teacher to a student during a case discussion:

1. You did a good job of highlighting the case for me. Can you now summarize the key problems that emerge rather than just summarizing the data collected?

2. You need to work on your ability to present a case.

The first comment provides information to the student on what he or she did correctly. It also suggests what should be done to improve his or her performance and states what behavior needs to be changed. The second comment does not provide the student with information that can be used to improve performance. Even if the comment were positive "Great presentation!"—the student would still not be getting the type of descriptive information that would allow him or her purposefully to repeat the same behavior another time. Feedback is most effective when: the student knows what criteria will be used to assess performance; the feedback is provided at the earliest opportunity, not postponed until the end of the course or clerkship; and the student has the opportunity to compare self-assessment to the judgment of an expert (Ende, 1983).

Feedback is difficult to give for several reasons. Some teachers feel uncomfortable when criticizing student performance. They say that students are neophytes and are expected to make mistakes. Others find it difficult to provide praise. The largest single barrier, common to almost all clinical teachers, however, is the lack of time for supervising student performance. Effective clinical supervision requires time for: being accessible and willing to help; observing student performance; and providing indications to the student of correct and incorrect behavior.

CONCLUSION

In the clinical setting we cannot "not" teach. Every contact with students constitutes a learning experience. Our choice is not whether to teach but rather how to teach in order to maximize the learning from a clinical encounter.

Although clinical teaching occurs in a variety of settings and is many times impromptu, we can enhance the impact of the clinical experience in all of its variation by 1) more purposefully modeling the behaviors that we wish students to learn; 2) providing students with opportunities for active, goal-related participation; 3) supporting a positive environment for learning; 4) clearly indicating the goals of particular clinical experiences; and 5) supervising student performance for the purpose of providing constructive feedback.

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"It Ain't Necessarily So": Uncovering Some Assumptions About Learners and Lectures

Marilla D. Svinicki
The University of Texas at Austin

A friend of mine in the History Department relates a story about lecturing to his enormous introductory American history class one day and drawing a brilliant analogy between some obscure crisis during the Revolutionary War and the Cuban missile crisis of the Kennedy administration. He was well into his tale when he suddenly realized he was looking into a sea of blank faces—blank, *young* faces. This brought him to an abrupt halt. After a significant pause he said, "You know, I've just realized that most of you are too young to *remember* the Cuban missile crisis, and this example is meaningless, isn't it?" Later, he told me that this incident made him acutely aware of the assumptions he had been making about his students and their backgrounds and skills.

We have all been guilty of making similar assumptions about our students at one time or another. In fact, each time we choose a particular teaching method, we are making assumptions about the students' learning styles and skills. Sometimes, these assumptions are conscious assumptions, and the decisions based on them are deliberate choices; more often, the assumptions are unconscious ones, and the decisions are made more by default than by design. This is especially true for teaching methods that have been around for a long time, such as lecturing. Many of us lecture without thinking about what student skills are necessary in order to learn from a lecture. The purpose of this essay is to bring some of these unconscious assumptions about learning from a lecture to a conscious level, so we can examine their implications for instructor behavior.

ASSUMPTION 1: The topic is of sufficient interest to students to capture their attention.

As instructors, we often have blind spots about the inherent interest value of our material. To us, it is obvious that our material is worth learning. Not so to the students, who don't have sufficient backgrounds to know what is important or why. To assume that the topic is of inherent interest to the students is dangerous. It is more likely the case that the instructor needs to make the topic interesting, and there are several ways this can be accomplished. Three factors involved in generating and maintaining interest are relevance, curiosity, and style.

Relevance in teaching used to refer to social causes or world events. Today's students have a much more personal and practical approach to relevance. One type of relevance for today's students is their interest in doing well on the evaluation. Showing the relationship of the content of a given lecture to the eventual evaluation activities goes a long way toward piquing students' interest in learning it. A second type is the relevance of the content to a task which must be accomplished or a job skill which must be performed. For example, the best time to teach students how to use the library is when they begin to work on a research paper. Their immediate need for this skill increases their interest in the topic.

A less immediately practical motivator is curiosity. Beginning the lecture with a question from the personal experience of the students arouses curiosity and sets the stage for the lecture to follow. For example, asking "Why is the sky blue?" might open a lecture on light refraction. Or, an instructor might introduce a lecture on mutation and survival with a paradoxical statement such as "Mammals are a more highly evolved life form, yet it is more likely that insects can survive major environmental upheavals." Interest can also be aroused by asking students to respond to a questionnaire or to an ungraded set of content questions at the beginning of the hour. Answers to the questions then form the basis for the lecture. Each of these techniques tries to get at the curiosity we all have about the unanswered question or the puzzling paradox.

A good presenter also tries to develop an interesting, lively presentation style which will attract and hold the listener's attention, even if the content doesn't. This doesn't mean becoming a stand-up comic or great orator. It may mean simply incorporating more variety into the presentation by using visuals or other support media. It may involve including different types of content from facts to anecdotes to quotes. It may be done by using different activities such as questions to and from the class, debates, or panels. One of the simplest ways of making your style more interesting is to let your own enthusiasm for the topic show.

The main idea is that we cannot assume the students come to us already interested in what we have to say. We need to help stimulate that interest.

ASSUMPTION 2: Students can listen to and absorb a continual flow of information for 50+ minutes.

Even if the lecturer succeeds in capturing interest, he or she cannot expect every student to pay constant attention throughout the lecture. It is impossible for anyone to take in continuously and process 50 minutes of information efficiently. In a group of 50 people, there will be 50 different attention span patterns operating, so that at any one time, only a portion of the audience is listening. The effective speaker arranges the flow of information and activity to insure that most of the listeners are listening when the most important things are being said. The listener's attention can be guided in several ways. Among them are direct cueing, information breaks, and attending to the amount of information given.

One way to help the audience be more efficient is to provide direct cues for attention. For example, good visual cues can capture attention immediately. Using visual aids such as overhead transparencies to highlight main points increases the probability that most of the audience will be attentive when a point is being made. A second technique uses verbal cues, phrases such as "the first main point is . . .", to direct attention to the statement which follows. Verbal cues are particularly effective with academic audiences, who have had experience trying to take notes in lectures. Varying vocal cues is a third attention-getting method. A good speaker learns to use his/her voice at many different volumes and pitches to indicate when critical information is coming. For example, raising the volume and slowing the pace when giving information which is critical sets that information apart from comments which are delivered casually in a normal tone and speed. The slow pace also makes it easier for the students to record the idea in their notes.

A technique for directing attention which we seldom consider is the judicious use of "information breaks." In addition to signaling the audience when important points are being made, the effective speaker allows time in the presentation for relaxation of attention. One can almost see the audience relax as a lecturer begins a story or anecdote. This relaxation is not to the point of inattention, but simply a lessening of tension that provides an opportunity for consolidation of information and for checking understanding. The use of humor or questions provide sanctioned interruptions to the flow of information and an opportunity to make noise, which is often a welcome relief. Laughter even stimulates oxygen intake and blood flow, both of which contribute to a renewal of energy. Elaborations and examples also allow some faster learners a chance to think about the material in more depth while the slower learners get another chance to understand before the presenter proceeds to the next topic.

Finally, the good presenter also recognizes that there is a limit to the amount and complexity of information which the students can absorb in any period of time. We are tempted to tell everything we know about a subject for fear the learners won't be exposed to it. But exposure to a topic and learning it are two different things. It is the presenter's responsibility to provide the organization and overview of a topic, not every detail. The presenter must choose which points are critical and which are not and include discussion on the three or four (depending on time) points which will have the greatest impact on the listener's understanding of the organization of the material. The details should supplement and clarify main points rather than make them more complex.

We as lecturers should remember that we can say a lot more in 50 minutes than the student can absorb. We must decide which parts of those 50 minutes we want the audience to master and then arrange the lecture to highlight those parts.

ASSUMPTION 3: Students are aural learners.

Presenting information by lecture implies that students will learn it just by hearing it. There are at least two problems with this assumption. First, the aural processing of information is very slow in comparison to visual processing. The old maxim "one picture is worth a thousand words" has a basis in fact. Part of the delay in aural processing is that the information presented this way comes serially. To be stored and recalled, the information must be analyzed and organized into a "gestalt" which is consistent with the learner's existing understanding. Visual information comes with a ready-made "gestalt" and is often stored in memory by that image. The second problem is that people differ in their preferred modes of learning; some prefer to hear about a thing, others to see it, others to read about it, and others to do it. Information presented by only one of these methods is maximally effective for only a portion of the population. To have the most wide-spread impact, information should be provided through several channels. Not only will more people's learning preferences be accommodated, but each person individually will benefit from having multiple sources. The effective presenter does not rely solely on aural learning, but provides visual support, active participation, reading materials and so on in order to use as many information channels as possible.

ASSUMPTION 4: Students are skilled listeners and notetakers.

If the purpose of a lecture is the transmission of information, then the long-term storage medium for that information is the notes the student takes. Notetaking does not make the student listen more attentively or process the information more effectively; it is simply a way of storing that information so that it can be retrieved later. If this is so, those notes had better be accurate and complete if they are to aid the student in later studying. As lecturers, we assume that if we said it in class, the students got it down in their notes correctly. Sadly, this is not necessarily the case. Some of our students are good notetakers and, because they have good notes, do well on subsequent exams. More of them are not and have to reconstruct the lecture content as best they can from inadequate or inaccurate notes. These students may not do so well on later exams. One might argue that exams assess accurate notetaking rather than grasp of the material. A good lecturer prefers not to leave such things to chance, but structures the lecture to improve the students' own notes. Some ways of enhancing notetaking are cueing, providing an outline, training, and monitoring the audience.

Direct cueing was discussed earlier as a way of enhancing attention. Use of visual aids, verbal cues and vocal/body variety can help students discriminate main from minor points and guide notetaking.

A second very effective technique is to provide the students with an outline of the lecture. Beginning a lecture with an overview or placing an outline of the talk in a prominent position where it can be referred to throughout will help listeners follow the flow from one main point to the next. A review of main points at the conclusion of a talk also helps the notetaker detect gaps in his/her notes.

If one will be working with a particular group over an extended period of time, a little time at the beginning of the semester devoted to notetaking can pay off in the long run. For example, a lecturer can provide a set of sample notes after delivering the first lecture. These can be used by the students to compare to their own notes to determine the extent to which they accurately identified main themes.

The lecturer should also learn to watch the audience for feedback, primarily non-verbal, to help pace the presentation. Watching when the listeners write things down or fail to write them down allows the speaker to monitor audience awareness of major points. This same audience writing behavior alerts the speaker about when to pause, when to continue, when to repeat, when to be quiet and so on. The facial expressions of the audience are important indications of understanding, interest, and appropriateness of speed.

ASSUMPTION 5: Students have sufficient background and vocabulary to follow the lecture.

A constant complaint against lecturers is the use of jargon. While some may be guilty of using such words to set themselves apart from the audience, most of us use this verbal shorthand unconsciously as a natural part of our vocabulary. Specialists in language have proposed that part of becoming "socialized into a discipline" is learning to speak the language so as to communicate with and be accepted by others in the discipline. In most teaching situations, however, the speaker is not talking to others who have also been socialized into the discipline, but rather to novices or non-specialists who do not share the same language. It is the responsibility of the speaker to be clear in communicating, and this requires an awareness of the background of the listeners so that the vocabulary chosen, the examples used and the analogies made will be appropriate. This was precisely the error being made by our history lecturer in the introduction to this essay. It did him no good to try to explain one concept by using an analogy of another concept which was also meaningless to the students. To be useful, analogies, examples, and vocabulary must be meaningful to the students. Drawing on their own experiences for relevant analogies enhances both interest and speed of learning.

Of course, there are some instances in which technical terms and phrases *must* be used or in which the speaker is trying to teach the verbal shorthand to the listeners. In those cases, the speaker must define all new terms as they are used and should highlight and elaborate on them as appropriate throughout the lecture. Unfamiliar terms can be handed out in a vocabulary list or written on the board before each lecture to insure that students recognize them. After that, consistency of use and familiarity will help students incorporate these terms into their own vocabulary.

ASSUMPTION 6: Students can monitor their own comprehension.

An important component in learning is the recognition of correct versus incorrect understanding of concepts. This recognition comes about when a student receives feedback on his or her interpretation of a concept. Feedback is always present when learning is occurring; the problem is that it is not necessarily accurate feedback. The students may go a long time believing that they understand what is being said when in reality not only do they *not* understand, but they don't know that they don't understand. That's what is meant by monitoring one's own comprehension, the ability to recognize when one doesn't understand. Because most lectures are paced by the presenter with very little opportunity for the listener to test understanding, a student can go for a long time believing that he or she is learning something when that is not the case. It is one level of learning to understand when a lecturer goes through a problem solution and quite another to be able to solve a problem yourself. It isn't until the student leaves the lecture and attempts to apply the concepts presented that things turn out to be less clear than they seemed in class. A wise lecturer will include opportunities for students to test their understanding during the presentation itself so that mistakes can be corrected before it's too late. This can be done by asking questions, real or rhetorical, by including small group discussions in the course of the lecture, by having the students solve short problems based on the content, all while they are still in class and can receive feedback on their answers. Active monitoring of comprehension assists students in recognizing gaps in their own understanding and reinforces the content at the same time.

ASSUMPTION 7: Students are assertive enough to speak up when they don't understand.

Even if our students are sophisticated enough to monitor their own comprehension, they need the related skill of doing something about it. Their willingness to speak up when they don't understand varies with their levels of self-confidence and maturity, the size of the group, the difficulty of the content, the presenter's response to questions, and many other variables. A classic instructor statement, delivered with his or her back to the group while erasing the board, is "Are there any questions?" It takes a fairly self-confident learner to speak up at that point. It also requires a few minutes for most learners to consolidate the information sufficiently enough to formulate a question in response to that invitation. The presenter should be sensitive to these problems and take steps to allow questions to surface. Pausing long enough for the audience to think about what questions they might have is an important first step. The phrasing of questions can encourage or discourage students as well. Saying "What questions occur to you at this point?" is more of an invitation to speak than "Does everyone understand?" Another technique involves planting a "shill" in the group, someone who has been specifically requested by the instructor to raise a question during class. This first question often will break the ice, especially when the speaker gives a supportive response to that person, thus indicating the desirability of speaking up. The speaker must be aware of facial expression, body language, and phrasing of answers to encourage questions. Comments such as "good question" or "that's often a confusing point" encourage students to voice their questions. Even the most self-confident professional can be reluctant to ask a question in front of a group if the presenter seems forbidding. It's also important to give full attention to the student while the question is being asked and not to interrupt even if you've heard that question dozens of times before. Active attention will indicate you are interested in making sure that that student's question is answered, thereby encouraging other questions as well.

ASSUMPTION 8: **Students can translate what they hear into action.**

The final assumption in lecturing is that once students have heard something, they can use it. As noted earlier, the process of watching someone else solve a problem is quite different from solving the problem yourself. Even adults need guidance in making this transition. Telling is not teaching. Hearing is not understanding. Comprehending is not learning. The instructor needs to incorporate opportunities for students to apply actively what they glean from the lecture in order for the learning to become usable in the future.

IN CONCLUSION

There are many good reasons to choose the lecture format as a primary teaching mode. It can be very stimulating when done well; it provides for the presentation of overviews and new information which may not be available in other formats; it is economical. However, we must also accept that there are constraints and problems associated with student learning from lectures. In this essay we have examined some of the problems which could arise if we allow assumptions about learning to go unchallenged. We have also examined what an instructor can do to alter lectures and avoid those problems once the assumptions are brought into the open. Neither the potential assumptions nor the possible solutions are exhausted here. To identify others requires that one reflect on the nature of learning, of teaching, and their interactions. We haven't said much about what assumptions lecturing makes about the skills of the teacher; this is another area which needs examining. We have concentrated only on lecturing, but similar assumptions may also be present and equally unchallenged in other instructional methods. I urge you to apply this process of reflection to all your instructional decisions, so that you can take steps to insure that instruction is as responsive to the needs and abilities of the learner and the teacher as possible.

Academic Counseling Techniques

Robert G. Pierleoni
Rush-Presbyterian-St. Luke's Medical Center, Chicago

Academic programs in the health professions tend to place greater time demands on students, because the schedule includes long clinical practice sessions in addition to the usual lectures, seminar and laboratory sessions common to other college and university programs. The fact that many of these clinical practice sessions are away from the home institution further adds to time constraints.

These time demands require a major reorientation by students whose previous academic experiences have been in very different university or college settings. The transition is difficult for some who find that study skills that had served them well in college are no longer adequate. More deliberate attention must be paid to priorities, and tighter schedules require more careful planning if even the most important tasks are to be accomplished. Happily, the caliber of most students in the health professions is such that these necessary adjustments can be made quickly once a few basic planning tips are pointed out.

The guidelines here grew out of academic counseling sessions over a three-year period with students in medicine, nursing, and the allied health sciences. Often, students came after reading about the service in the student handbook or hearing it described in student orientation sessions. Most sought counseling because they believed their poor test results were due to weak test-taking skills or test anxiety. Although these factors frequently played a part, poor study skills and inefficient time management practices more likely were the basic causes of poor performance.

Although these guidelines were developed for health professions students, they can serve other students in higher education who need to adjust their *modus operandi* to meet the new challenges of their academic careers. The guidelines can be used by academic counselors as they work with individuals or groups of students. The following handouts may be used to reinforce major points and for future reference.

Handout No. 1

TIME MANAGEMENT SKILLS: GUIDELINES FOR STUDENTS

There are those who believe the true professional is the person who always has time to do everything there is to be done. There are others who believe that never running short of time indicates a failure to function at full capacity. Truth lies somewhere between these two points of view. Learning how to manage time in order to carry out responsibilities and reach desired goals in the limited time available is an important part of becoming a professional. Effective time management promotes feelings of accomplishment and success and contributes to overall emotional stability and peace of mind.

The remaining paragraphs suggest specific techniques for managing your time better as you wend your way down the path toward a career as a health professional. Obviously, the demands of your program, your course schedule, and your specific needs will affect how you apply these techniques.

Perhaps the most basic concept in time management is commitment, or the resolve to manage time more effectively. Such commitment stems from dissatisfaction with what has been happening—or not happening—and the feelings of frustration, helplessness, inadequacy, fear, and self-doubt which accompany this dissatisfaction. It quickly becomes apparent that effective time management does not just happen; it requires planning. Planning implies scheduling. Scheduling suggests routine. Time management can be seen as the process of deciding, ahead of time, what will be done and when. Decisions about what will be done necessitate the listing of tasks, preferably in the context of larger objectives or goals. Just when these tasks are to be completed is a separate, albeit related, issue. Knowing specifically and clearly what is to be done makes it easier to determine when it will (can, should) be done.

As the preceding suggests, it is not enough to generate a list of tasks to be accomplished. Determining when the tasks will be completed is essential and requires that you assign priorities. All tasks are not equally important or due at the same time. In order to decide upon priorities, you need to consider factors such as the task's external deadlines, the time and effort needed to do the task, its sequential relationship to other tasks, your interest and motivation, and the availability of necessary resources (to name just a few). It is neither efficient nor effective to perform tasks in some chance order such as "first come, first served". That kind of priority may work in the butcher shop, but it seldom will work for you when you are dealing with several tasks in one time segment, all of which are affected by qualitative variables.

It is important to be realistic in planning. It is very possible, perhaps likely, that on some occasions you simply will not be able to complete all of the tasks listed. You will find such times less stressful if what you leave unfinished has relatively lower priority than what you completed and if your schedule is flexible enough to permit the unfinished task to be reassigned to another time. Such adjustments are likely, especially as you are attempting to gain experience in estimating how long it really takes to perform certain tasks. Initially, you may have trouble estimating how long a task will take if you have not consciously kept track of the relationship of time to specific tasks before. As more effective time management skills develop, the accuracy of your time estimates will improve.

The type of planning referred to in this discussion is the antithesis of the concept of "crisis management," especially as this occurs in the health care industry. Sometimes, in a health care setting, events and time must be managed with a crisis orientation or approach. The emergency room or the intensive care unit are obvious examples. Health professionals are likely to encounter such situations in their practice. Students in clinical or practicum courses may also face or, at least, observe them. However, too often the health professionals extend such spontaneous responses to non-crisis situations. For your own well-being, you should resist the temptation to convert your responsibilities as a student to an endless series of "crises". Too often, these are fabricated to cover a lack of planning.

In practical terms, how can you improve your time managment skills? Begin by developing a detailed weekly schedule which includes school (e.g., classes, labs, clinical assignments) and non-school (e.g., weekly appointments, part-time jobs) time commitments. Collectively, these represent a major part of your weekly routine. Enter this information on a weekly calendar form—a two-way chart with the seven days of the week across the top and hours of the day (in one-hour modules) down the left side. Then, indicate time for personal morning preparations, meals and, if applicable, travel time to the Medical Center. The remaining time should be listed on a separate sheet of paper by the day of the week, with total time and specific hours associated with each day. Then decide which tasks are to be accomplished during those hours. Your choices should be based on the priorities you establish.

It is perhaps most manageable simply to associate a particular course or courses with these "free" (free for you to decide) hours. Keep in mind that you are planning a standard, essentially generic, schedule. Consider identifying some time just before and after each class to prepare and do immediate follow-up activities such as relating lecture notes to other sources or looking up difficult concepts or unknown terms. If possible, try to schedule "catch-up" time each week for the tasks not finished as originally scheduled. If you do not need the time for that purpose, you may choose to get a head start on the following week's work, or you may use it for some social activity.

You should provide time for social activities in the schedule. If your classmates are involved in such activities, perhaps you all can agree on a common time each week and plan your individual schedules accordingly.

Once you have made these time-related decisions, it remains for you to generate specific tasks for each course. Some of these will be as generic as textbook reading and lecture note reviewing. Others may be specific to a given week, such as preparing a report or studying for a quiz. These task lists define the specific activities you will be engaged in when the scheduled time for a specific course occurs.

In the final analysis, effective time management means developing a plan which makes the best use of the limited time available while also reflecting individual priorities. It is being responsible. It is being professional. Greater success surely will result.

Handout No. 2
TEST-TAKING SKILLS: GUIDELINES FOR STUDENTS

A. *Getting Ready*

1. *Learn the material.* Obviously, nothing better prepares you for taking a test than learning the material that will be tested. Some basic suggestions about how to do that are offered on the next page.
2. *Create a review plan and follow it.* Leaving review activity until two days before the test is unwise. While, ideally, review activities are an ongoing part of the learning process, it is useful to create a specific review plan for each

test. The essential elements of such a plan include a prioritized list of tasks and a schedule which not only identifies time slots for review work but associates specific tasks/activities with each session.

It is useful to set aside a block of time, perhaps two or three hours, each week for review work. It is advisable to supplement this by additional review sessions as the test date approaches. Added review sessions are most valuable if scheduled at least a week before the test. Starting sooner is advisable if the volume of material to be reviewed is extensive, if other tests are scheduled at about the same time, or if other assignments or commitments come due at that time.

If a reasonable review plan has been established and conscientiously followed, the temptation to cram will be reduced. While cramming may have helped in other educational settings, it is less likely to work in health professions schools. The accelerated pace of the academic programs, the amount of material to be learned quickly, the heavy schedule of classes, laboratories and clinical assignments, and the pressure to make rapid social and psychological adjustments to the medical center environment will all make cramming ineffective.

3. *Review with other students.* By explaining ideas, describing procedures, asking and answering questions, and discussing material with others, you can strengthen your learning. Periodic review sessions with one or more students can be helpful if all approach their commitments responsibly. For such sessions to be effective in meeting everyone's needs, there must be a clear agenda of topics for each session and each participant must conscientiously prepare for selected topics by attempting to learn the material and preparing discussion questions. Drill on basic facts also may be included in these sessions. Participants are advised to alternate asking and answering questions.

B. *Organizing Content for Review*

1. *Make lists.* Perhaps the simplest way to start organizing content for review is to develop lists of things to be learned. Examples include lists of key terms, major concepts or

ideas, and main messages. At this stage, there is no need to be detailed. These lists should be relatively brief but must encompass the content to be learned.

2. *Produce information sets.* Using these lists, produce a series of "information sets" that will promote learning and facilitate future retrieval. The most effective sets are relatively simple with little detail. They contain key elements of a concept, elements which when recalled trigger the detail necessary to flesh out the concept. These information sets, when collected in a series, should cover all of the main messages to be learned, but without all of the detail; these are inferred and are retrieved through associations with the elements in the information set. It is useful to create information sets which represent the material graphically. Flow charts which represent sequence and direction, anatomical drawings or sketches, charts, tables, and diagrams showing interrelationships are examples of graphic representations of content. These information sets may be modified, added to, or divided as you increase your understanding or acquire new knowledge. Your most important task is to learn the main messages and concepts first, the details later. This helps you avoid not being able to see the forest because of the trees. Using these information sets for review better assures learning and retrieving content in manageable and logical units or chunks.

C. *Building Confidence During a Test*

1. *Determine what you control and what you don't.* Once this is accomplished, focus on the former. For example, devise strategies for answering difficult questions, rather than expending energy thinking about how the questions should be edited.

2. *Plan alternative relaxation techniques to use during a test.* Make a list which includes such items as slowing the pace of breathing, changing position to reduce tension and relax muscles, sipping a cool drink, resting eyes, shaking out writing hand, etc.

3. *Provide positive self-reinforcement.* Do not dwell on how much there is left to do but on how much you have already accomplished. First answer questions that are

easy for you, skipping more difficult questions to return to later.

4. *Let the percentages work for you.* For example, on five-option multiple choice questions, every option you can eliminate increases your probability of getting the correct answer by 20%, even if you just guess in the end. For many questions, it is possible to reduce plausible alternatives so that the probability of being correct is 1 in 4, 1 in 3, or even 1 in 2. Over several questions on an exam, these probabilities improve chances for correct answers and have a positive impact on the total test score.

Teaching Students to Think: A Workshop Design

Betty LaSere Erickson
University of Rhode Island

Like faculty in most colleges and universities, professors at the University of Rhode Island (URI) have been troubled by their students' performances on tasks which require reasoning and problem-solving, thinking and creating. Although URI students seem capable of memorizing every piece of information which comes their way, many appear unable to apply course material in any manner which might be called critical or creative thinking.

Over the past several years, we've spent a good deal of time with faculty speculating about why students seem so persistent in memorizing and so resistant to other forms of learning. Some hypotheses can be dismissed immediately. For example, there's no evidence that URI admission standards have dropped; in fact, SAT scores seem to be getting better. Other speculations merit further attention. It's conceivable that students' preoccupations with memorization are a function of early positions in the pattern of intellectual development described by Perry (1970). Furthermore, if it's true that critical thinking involves socializing students into the implicit values and assumptions that determine the forms of critical inquiry and analysis in different disciplines, then the values, motivations, and aspirations which today's students bring to the university may make it especially difficult to engage students in thinking in some disciplines. Such hypotheses are intriguing, and further investigations may produce valuable insights and suggestions for college teachers.

Meanwhile, more is known about how students develop abilities to think critically and creatively than finds its way into college classrooms. Most learning theorists agree that students are more likely to develop their thinking skills if they are given opportunities to practice those skills during instruction. Alas, not all college professors provide practice for the variety of thinking skills they hope students will develop, and few provide students with enough practice. Lectures and reading assignments continue to be the most widely used teaching methods. Although they give professors (who probably don't need it) lots of practice in thinking, lectures and readings do not typically provide the practice which students need. We suspect that professors who rely exclusively on these methods may (albeit unintentionally) be encouraging students to memorize and retarding the development of their thinking skills.

Yet, in the ten years we have worked in URI's Instructional Development Program, we have seen some truly exceptional teachers—faculty who recognize students' needs to practice, who are imaginative in creating practice exercises and assignments, and who are skilled in using these activities in their courses. We decided to create a forum in which these faculty might share their ideas, experiences, and insights with their colleagues. We organized a workshop, called it "Teaching Students to Think," invited several of URI's outstanding teachers to conduct sessions, and promised the rest of the faculty that they would be hard pressed to find so many good teachers with so many good ideas in one place at one time.

We have offered this workshop at least once, sometimes twice in each of the past four years. Each time, we've asked 8-12 faculty (depending on the time of year and number of people we anticipate might attend) to prepare sessions in which they describe, demonstrate, and discuss techniques and activities which they use to engage students in practicing the thinking skills required in their courses. We also ask these faculty to prepare short papers that: (1) outline the skills they hope students will develop in their courses; (2) describe the methods or activities they use to provide practice for those skills; (3) include samples of actual questions or exercises or assignments they've used; and (4) summarize their perceptions of the strengths and limitations in the methods. We request only brief, informal papers—outlines, notes, sample assignments which can be used as an entree to discussion and as a reminder when faculty leave.

We open each workshop with a few introductory remarks, summarizing the research on thinking and stressing the need to provide practice. We then introduce the faculty we've asked to present and mention the techniques or methods they'll discuss.

The remainder of the workshop is conducted in a round table format. That is, each discussion leader is assigned to a table which seats 8-10 people. We encourage small groups so that faculty have opportunities to ask questions, to offer suggestions, and to exchange ideas. Faculty attending the workshop are invited to go to a table which interests them and to spend 30-45 minutes at that table. The discussion leaders have been told that they're on their own to do whatever makes sense during that time. Some give people time to skim their papers; others provide brief summaries of their ideas; still others demonstrate the techniques or show videotapes of their classes. All save ample time for discussion. After 30-45 minutes, we interrupt these conversations, announce that people may move to another table which interests them . . . and so on, for as many sessions as are scheduled.

These workshops have brought rave reviews from faculty who attend. For the most part, the success of these sessions must be credited to the talents and creativity of the faculty who serve as discussion leaders. Although the papers which follow do not report all of the issues raised or ideas considered during the sessions, we do think these papers suggest their authors' thoughtfulness about teaching, their creativity in designing activities and assignments, and their good humor.

On the other hand, those who might try to replicate this workshop on other campuses should probably know that we take some credit for their success. When our program was young, we tried to organize similar sessions . . . before we knew much about URI faculty and their teaching skills. We made some unfortunate mistakes. We learned to be very careful and highly selective in the faculty whom we ask to conduct these sessions.

First, we only ask faculty whose teaching we know well. Most have participated in our year-long Teaching Fellows Program and/or have used our rather intensive consultation service. In every case, we've had many opportunities to examine their course materials, to observe and videotape their classes, to discuss their examinations, to review their student evaluations, and to talk with them about their courses. Thus, we can say with unwavering confidence that faculty who are leading these sessions do indeed teach and test for critical and creative thinking, that they are thoughtful and creative in planning their instruction, and that they have some good ideas worth trying.

When selecting discussion leaders, we also try to draw faculty from a variety of teaching situations. Because many faculty initially suspect that their problems are unique to their disciplines or their class sizes or their course levels, we try to find discussion leaders who teach in different disciplines, who teach classes of different sizes, and who teach courses at different levels in the curriculum. The variety is important in order to attract people to the workshop; once there, most faculty discover that they are intrigued by suggestions from people they initially regarded as unlikely sources of inspiration.

Finally, we ask only those faculty who can "talk to" faculty outside their disciplines. Although most of the ideas suggested in these sessions could be adapted in a wide variety of courses, this is not immediately obvious to all who attend. URI faculty are as inclined as any to say "You can have discussions in the humanities, but you can't do that in the sciences," or "Your subject lends itself to that sort of assignment, but those situations don't exist in my area." These workshops are successful only to the extent that the discussion leaders are able to respond with concrete and specific ideas. Often, this requires that discussion leaders be able to take a topic from another discipline and illustrate how the method or assignment might be adapted to teach that particular topic.

In sum, the faculty whom we ask to conduct sessions in these conferences pass some pretty rigorous tests. They must be imaginative teachers, capable of designing exercises and assignments which engage students in thinking about their subject matter. They must be effective in using those exercises and assignments, and their effectiveness needs to be reflected in student learning and in student ratings of instruction. They must be able to suggest strategies and assignments which colleagues in disciplines different from their own might use in their courses. Finally, they must care enough about teaching and learning to go to the trouble.

We think URI has more than its fair share of such folks, we feel lucky to know who several of them are, and we look forward to discovering others. Meanwhile, the papers which follow represent a sample of those prepared by faculty for these conferences. Although they were intended to be "notes" which participants might take away from the conference in order to remind them of things they heard, we think they can stand alone and offer "some good ideas worth trying."

First, Wendy Holmes (Associate Professor, Department of Art) describes how she uses small group discussions to engage students (all 200 of them) in thinking about art in her introductory art course. C. B. Peters (Associate Professor, Department of Sociology and Anthropology, and Associate Dean, College of Arts and Sciences) offers eight creative, yet practical, suggestions (ranging from study skills workshops to limerick contests; there's something here for everyone) for "waging war on ennui" and involving students in learning. Yngve Ramstad (Assistant

Professor, Department of Economics) provides several cleverly written group problem-solving exercises and explains how he uses them to encourage his students to "think like economists." Lois Cuddy (Associate Professor, Department of English) suggests a brief (but elegant in its simplicity) writing assignment which several URI professors have borrowed and adapted to help their students state opinions and defend them with evidence. Finally, James Fasching (Professor and Chair, Department of Chemistry) and I describe the use of small group discussions (yes, there is room for discussion, even in the sciences) and group research projects to give students practice in scientific reasoning and problem-solving.

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Small Groups in Large Classes

Wendy Holmes
University of Rhode Island

The fact that "mass lecture" is almost synonymous with "mass class" in academic circles suggests that the only thing an instructor can do with large classes is talk to (or at) them. After some desultory attempts at general discussions, question and answer sessions, and optional discussions for interested students, that is exactly what I settled into in "Introduction to Art," a class in art appreciation which I teach to roughly two hundred students every semester. I clarified and refined my lectures. I distributed mimeographed sheets bearing artists' names and dates and the main points of each lecture. I showed slides of paintings and talked about them.

After my first experience of team-teaching with colleagues from other departments, I felt lucky to be talking about visual art, because it was obviously easier to retain student interest in objects of discussion that were visibly before them than to lecture on theories or stories or histories that were absent and unread. On the other hand, a class in which the lights are out most of the time has more than its share of sleepers.

What I disliked about the large classes was the passivity and literalness of the students, their desire for precise answers to questions for which there are no precise answers, their tendency to busy themselves recording every word I uttered rather than really looking at the paintings, the poor quality of their interpretive essays, and the resentment that was inspired by exams. I came to believe that the speaker/listener dispensor/receiver structure of the lecture format, exaggerated in a mass class situation with no discussion or separate discussion sections, bred fear and hostility toward *doing* anything. It took me longer to realize that some of my expectations were unrealistic and that my own aims and methods were at odds.

I wanted to develop interpretive competence and confidence, which is far more important in an art appreciation class than the memorization of data, and I tested for interpretive competence. However, in class, I provided the students with no practice in interpreting; in taking exams, students were confronted with an unfamiliar activity and a sink-or-swim situation. Some, of course, were able to use my interpretive commentary as a model and apply the methods I had discussed and demonstrated to unfamiliar visual examples, but easily 50 percent of the students were unable to do so.

What follows is a sampling of the sorts of exercises and discussion questions which I incorporated into the mass lecture format in order to align my methods with my goals. Some are designed to counteract "spoon-feeding," to encourage students to look and think for themselves, before they hear what I have to say about a certain artistic style or example; others demonstrate principles or phenomena which have been presented theoretically in a preceding lecture; others provide practice in visual recognition and interpretation; and most of them—to the extent that they are carried out in small groups of three to five students—promote the articulation of opinions about art and exchange of ideas.

1. After a lecture on the contextual preconditions of visual communication and the difficulty of deciphering works which are culturally remote, students are asked to form groups to discuss and answer the following questions about a Fifteenth Century painting of the Annunciation.
    a. What event is depicted in the foreground of the painting?

   b. What is the relationship of the three figures in the background to the figures in the foreground?
   c. What does the bird with the halo represent?

   After 10 to 15 minutes, I collect the answers and read as various a selection as I can find in a few minutes. This serves to illustrate the point of the previous lecture and leads into a discussion of iconography.

2. For the purpose of emphasizing the difference between what a work of art represents and what it expresses, student groups are asked to discuss and list the differences between two Fifteenth Century Annunications, one of which was discussed in an earlier class. After 15 minutes, I gather the papers and review some of the differences they might have noted, relating them to the overall expressive and iconographic content of the paintings.

3. After a brief period of looking at *Christina's World* by Andrew Wyeth and reading the following statements, students are asked to indicate—by a show of hands—which are interpretive statements.
   a. The colors in this painting are low in saturation.
   b. In this painting, a female figure with her face turned away from the viewer is shown in a rural setting.
   c. This is a picture about the beauty of nature.
   d. There are three principal "objects" or "figures" in this painting and one primary division in the surrounding "field" or environment.
   e. The painting expresses loneliness.

   I go on to say more about descriptive and interpretive statements, how description supports interpretation, and what may make one interpretive statement more accurate or better than another.

4. I allow students about ten minutes to isolate the interpretive kernel in three brief critical statements on *The Scream* by Edward Munch, a painting which they have each interpreted. This serves to reinforce earlier exercises on making and supporting interpretive claims and also illustrates that what they have

been doing conforms to common critical practice.

5. After discussing the concept of style, but before discussing Impressionism, student groups are shown about 80 Impressionist paintings (on automatic timer) and asked to characterize the style in terms of subject matter, treatment of subject matter, formal characteristics, and media and techniques.

For the most part, such exercises seem to serve their purposes. However, in the first semester that I made an effort to use them consistently, a faculty member sitting in on the course described group discussions and activities as the weakest part of the course, because some students were non-participants or passive or refused to take the groups seriously. My own opinion was that most students did participate, enjoyed the participation, and learned something from it. The activity of most students made the passive minority highly visible.

During the second semester, I refined many of the exercises and clarified ambiguous questions. I collected all class exercises and used them to spot-check attendance. I instituted a new grading policy, awarding "extra-credit" points for some group and individual exercises. All students or groups handing in an assignment received an attendance check, but one or two points were awarded only for adequate or superior answers to questions. Attendance was excellent, class morale high, and the interpretive essays on exams were much better. I believe that the single most important factor in the students' improvements from first to second semester was my decision to collect and grade in-class assignments. I have no shame about using the grade to force students to do what I know to be good for them.

One of the things I enjoy most about this method of teaching is planning and inventing exercises and sequences of exercises which enable students to come to realizations about art which are not automatically processed as information. One of the things that I do not enjoy is the amount of time it takes to read and record the assignments. In many ways, it's easier to lecture!

Silk Purses

Calvin B. Peters
University of Rhode Island

Truth be told, it can't be done. The pop quiz, the points for attendance, the points for participation, the extra credit, the early exam, the make-up exam, the practice, and countless other distortions of proper academics have failed to make a dent in the ennui which grips the majority of students. Perhaps, and I think this is a long shot, these and assorted other practices have made students appear more eager (usually judged by their mere appearance—a fact subject to influence by the awarding of points), but I think none of us believes such gimmickry has thoroughly motivated students to engage a course, much less a discipline, with genuine intellectual curiosity.

So, why keep trying? Why indeed. The fact is many don't, and with good reason. After all, if every trick in the book (and some you thought up yourself) has been tried and found wanting, why not simply resign yourself to casting pearls before swine and get on with it? I believe there are a number of good arguments against such resignation, but it is not my intention to adduce them here. No purpose would be served by such an exercise; motivating faculty members to seek to motivate students—well, truth be told, it can't be done either.

With what, then, am I left? Among other things, a suspicion that there remain a number of faculty who, despite the proved ineffectiveness of the methods, persist in trying to motivate students to set about studying and learning with real eagerness. It is to this group of die-hards that I want to address the remainder of my remarks.

In a sense, there doesn't seem to be much to say. If nothing works—and at the risk of overstatement, I believe none of what follows works either—why go to the trouble of sharing anything? The answer is simple. Just because these ideas don't work doesn't mean they aren't fun. And if you have devoted yourself to a hopeless task, you may as well have fun while you're at it.

What follows, then, are eight specific, feasible, and I think fun suggestions for waging war on ennui. Mind you, you'll still lose, but you'll go down smiling. A final caveat: These suggestions are based on experiences in a large (300-plus students, nearly all not motivated) course in which the acquisition of skills in thinking and the development of a desire for learning were regarded as more important than the mastery of a set of facts. Should you desire to employ these suggestions in a different context, some adjustments may have to be made.

SUGGESTION 1

There is a school of thought that holds that students are like mules: first you've got to get their attention. The attention-getting device recommended is a grade, preferably a low one. Whether there is any wisdom in this approach or not, there is, I believe, some merit in the idea of early and frequent examinations. Exams, particularly good ones and particularly those that evaluate more than memorization, are difficult to write. True enough, but you have to admit that each exam you give adds up to two classes you don't have to lecture—one to give it, one to go over it. Still, it is not a good trade-off unless there is something to be gained. There is.

An examination schedule that includes an early exam (say, the end of the third week) plus frequent additional exams (say, the seventh week, the eleventh week, and a comprehensive final the fifteenth week) offers some specific additional advantages. First, it provides you and your students a gauge of their progress. They will know early on how they stand, how well they are studying, how well they can perform the kinds of tasks you expect of them. Second, an early and frequent examination policy allows time for adjustments. If your students do well on concept formation ("Which of the following is an example of . . .?") but poorly on application items ("How would Freud respond to a claim that . . .?"), you can reallocate your efforts in the hope of alleviating this problem. Finally, the early and frequent use of examinations highlights their true function—devices to promote learning. Frequent examinations give proximate goals to which classroom activities can be referred. In addition, the review of an examination—explaining why the correct answers were correct, and, perhaps more important, explaining why the incorrect answers were incorrect—can illuminate the modes of thinking and reasoning you are trying to develop.

SUGGESTION 2

Help is best given before it becomes a cry of despair. "Is there *anything* I can do?" And, if you take the first suggestion, you'll have plenty of opportunities to provide assistance to your students. Before each of your examinations, you will want (remember, you're the one who is devoted to this hopeless task) to schedule a couple of organized help sessions outside your regular class meetings. I usually give examinations on Fridays, so I schedule help sessions on Wednesday nights and late Thursday afternoons. Don't let the "organized" throw you; not much has to be done. I think the best way to organize help sessions is to distribute a week before the examination the question stems that will appear on test day. These stems organize the help session for you. "What's the answer to 12?" "I don't understand 14." From there, the session becomes a battle of wits. Your students seek, in ever more clever ways, to pry out of you precise answers. You graciously refuse to be fooled and offer instead valuable study hints, sample solution algorithms—"To answer 15, you need to do three things . . ." You do need to insist that the session begin and continue with students doing the asking. Surely, you don't want to give an additional lecture. One more thing. Don't fret about distributing your questions. They are, after all, the things you want your students to be able to do. Worry more about writing questions that test more than memorization and about transforming perfectly good application questions into rote by giving away answers to some wise guy 18-year-old who is more clever than you think.

SUGGESTION 3

Each of us has had an encounter like the following: "I don't understand why I did so poorly. I read the books, I came to every class, I took notes, I came to the help sessions, I studied for hours. When I got to the test, I just couldn't do it. What can I do?" "Try harder," we reply. Or, if we are on a campus that has one, "Have you gone to the Study Skills Center?" The answers don't seem very satisfying, either to us ("There must be more like this one.") or to them ("But this is the only course that gives me trouble."). What can be done?

If you are ready for some additional heartbreak (and who isn't?), you can create your own study skills workshops. It is not so hard as it sounds, but it can be more infuriating than you imagine. The process is relatively straightforward. Select several specific study skills that you suspect may account for the tried-and-failed syndrome. I identified *ex nihilo* note-taking, text-reading, studying, and test-taking. Schedule a workshop on each skill and advertise them. Very simple, very easy.

The not so simple and the not so easy part is planning and conducting each workshop. (This isn't the heartbreak; not yet.) While the activities in each session are important, it is crucial that the materials you use be actual course materials. Use a videotape of your last lecture. Use passages from assigned reading. Use actual test items. The virtue of the illustration of study skills with your course material is that students can develop skills inductively rather than having to transfer general skills to the specific circumstances of your course. Okay, but what do you do?

Show videotaped portions of a lecture. Ask students to take notes. Ask them to compare their notes with each other's and with their previous notes. Show another portion. Take notes yourself. Explain why you took the notes you did. Establish a set of note-taking guidelines. Show the original portion again. Have them take notes using you and the guidelines as a model.

Or, give them a set of exam items with some memory, some concept formation, some application questions. Have them answer the questions. Ask them to explain how they eliminated incorrect choices. Show how a question is structured. Explain how to discover what is being asked. Design a general algorithm for attacking questions. Demonstrate its use. Give them a few more questions for practice.

The variations are, of course, endless. Be imaginative, but concentrate on the development of skills, not content. Oh, now for the heartbreak. Don't be surprised if your turn-out is low. It seems many students want better grades without doing anything different. Don't give up though; those who come benefit. But then, they were probably motivated to begin with. An artifact of this suggestion appears in Figure 1.

SUGGESTION 4

There is perhaps nothing more stultifying than listening to a lecturer, any lecturer, day after day. Most of us know that, so we try to build into our courses some alternative activities. Ah, discussion. Now there is an activity that with the motivated can be productive and uplifting; with the unmotivated, it is clearly a different and dismal story. Can anything be done with discussion to motivate students, especially when you've got 300 of them? The

Soc. 202-01
DO YOU:

TAKE NOTES DURING LECTURES THAT MAKE NO SENSE WHEN YOU STUDY?

TAKE NOTES THAT MAKE SENSE BUT HAVE NOTHING TO DO WITH THE MATERIAL ON THE EXAMINATION?

READ YOUR ASSIGNMENTS AND FIND YOURSELF UNABLE TO MAKE SENSE OUT OF THEM?

STUDY FOR HOURS ONLY TO FIND YOURSELF UNPREPARED FOR THE QUESTIONS ON THE EXAMINATION?

USUALLY PICK THE WRONG ANSWER WHEN YOU HAVE NARROWED DOWN A MULTIPLE CHOICE ITEM TO TWO CHOICES?

If your answer to any of these questions is "yes" (or even "sometimes" or "once in a while"), then you will want to plan to attend the special YOU CAN DO BETTER IN SOCIOLOGY workshops. These workshops are designed to help you take better notes, understand what you read, study more efficiently, and decipher multiple choice test items. Each of the workshops will deal with actual course material in a way that will enhance your academic skills. At the same time, you will also increase your comprehension of the concepts and ideas of SOC 202. Each session will involve you in an active way (through discussion, role playing, and practice) in improving your learning abilities. Plan now to attend.

Thursday, February 24, 4:00–5:30, C-275
"WHAT DID HE SAY?": TAKING BETTER NOTES
(Bring your notes from class and your book)

Tuesday, March 1, 4:00–5:30, C-277
"IT'S ALL GREEK TO ME": UNDERSTANDING YOUR READING
(Bring your books and reading notes.)

Thursday, March 3, 4:00–5:30, C-275
"PREPARATION AND PERSPIRATION": STUDYING EFFICIENTLY
(Bring your books, your reading notes, and your notes from class)

Tuesday, March 8, 4:00–5:30, C-277
"TESTING, 1, 2, 3, TESTING": TAKING TESTS
(Bring your old test and quiz.)

FIGURE 1. Study skills workshops announcement.

answer is: no, you can't motivate them; yes, you can try, even with 300. Here's how.

First, don't forget everything you know about discussion activities. Remember that small groups work best, that specific tasks are better than vague ones, that short tasks are better than long ones, that feedback is essential. With those things in mind, arm yourself with a handful of blank cards and venture forth.

> What I want you to do is break up into groups of about four or five—lean across, turn around, bend down, just make some groups. Once you have done that, I want each of you to come up with a list of words that you associate with Karl Marx. They can be anything—ideas, adjectives, positives, negatives, anything. Then, I want you to use these words to write a short profile of Marx. I'll give each group a card to record its profile. In a few minutes, I'll collect them, and we'll see what kind of fellow Marx was. You don't need to worry about whether or not you're right. I want to know what you associate with Marx—tell me what you think of him.

That's it. I'd give this exercise 10-15 minutes, collect the cards, read aloud a sample of them, comment on those, give a brief sketch of my own, and consider it a job well done.

Of course, there are many different kinds of tasks that can be utliized in this way. Lists, explanations, solutions, reasons, and so on. It is useful to tie directly some of these activities to instructional objectives: "This is the sort of question, the kind of thing, that you will confront on the examination. So, this is a good opportunity to practice and to gain some sense of where you stand in terms of your understanding." One thing you will notice is that some people won't be doing what you say. But don't worry. They don't listen to your lectures either.

SUGGESTION 5

A tried and false (remember, none of them is true) method for motivating students is to encourage them to express their opinions about the sorts of things discussed in class. In small classes, this is often done through essay assignments: "Give me your opinion about . . .," "Take a position on . . .," "Tell me what you think about . . . ." Simply because you've not got a small class is no reason to give up the essay. Sure, you're thinking, have your assistants read them. What if you haven't got any? Still, don't give up the essay.

The problems with essay assignments for large numbers are reading them without losing your mind and returning them to students in a reasonable time. These two problems can be solved relatively simply by staggering your assignments, due dates, and topics. For instance, break your class into, say, ten essay groups. Give the first group an assignment the third week of the semester, due the fifth week; give the second group a different assignment the fourth week, due the sixth week; and so on. Oh, you will still have to read them all, but not all at once and not all on the same topic. I suggested to my students that they limit their essays to 300 words. I was able to read, evaluate, and to some extent respond to 35 a week without being hopelessly overburdened.

SUGGESTION 6

Advertising, despite its tastelessness, has a few lessons for all of us. Among them is: If you want people to get interested in a product, have a contest. And the more contest-like, the better—announcements, entry blanks, prizes, and, of course, winners. The basics of running a contest are simple. (1) Find a medium of expression that is slightly exotic. I, for instance, have picked out art and limericks. (2) Tie the substance of the contest to the substance of your course. "Draw a picture of . . .," "Write a limerick about. . . ." (3) Be willing to give the entrants—each of them—something they value. I have settled on extra credit points, roughly two percent of the course total per contest. (4) Design announcements and entry blanks. This is important. You can't expect them to think it's a contest if it doesn't look like one. (5) Have a prize for the winner.

Contests are easy and silly. They do, however, let students know that academia is less serious than meets the eye. Some artifacts from this suggestion appear in Figures 2 and 3.

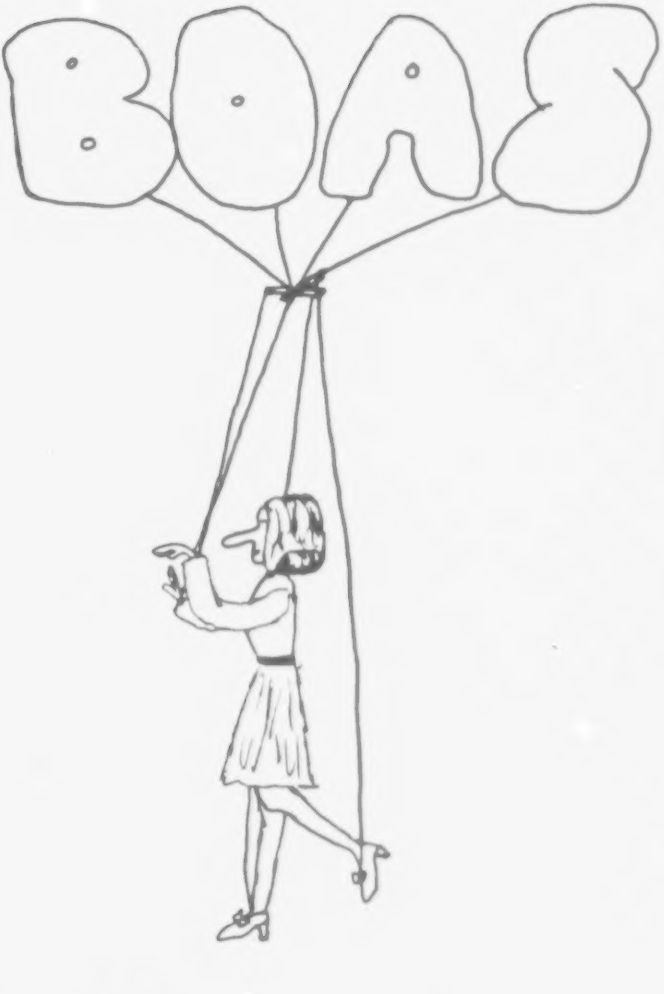


FIGURE 2. Margaret Mead art contest winner.

ANNOUNCING

THE FIRST ANNUAL

CHARLES DARWIN MEMORIAL LIMERICK CONTEST

WIN POINTS AND PRIZES!

All you have to do is write a limerick:

Could Anything be Easier or More Fun?

Yes, friends, once again you can make your passage through Sociology 202 a bit easier with a few fun filled hours of imaginative thought. THE CHARLES DARWIN MEMORIAL LIMERICK CONTEST promises to be one of the highlights of the academic year. You won't want to be left out.

Entering is easy. All you need to do is select a topic bearing on evolution and human society and write a limerick about it. The limerick must be five typewritten anapest lines with an AABBA rhyme scheme. There are no other restrictions! Let your mind run free!

Oh yes, the prizes. Each entry (one per student; my apologies to you budding poets) will be awarded one bonus point. The entries will be judged by a panel of independent experts on the bases of originality, content, humor and cleverness. The author of the winning entry will be awarded a cash prize of $5.00 (American) plus a lifetime membership in the Sociology and Anthropology Club. What could be more valuable?!

So start now! You can win five bucks writing rhymes for Chuck. The contest closes at 4:00 p.m. on Tuesday, April 24, 1984.

FIGURE 3. Contest announcement.

SUGGESTION 7

In addition to the planned contest that I've just described, there is also the impromptu, in-class contest. The guidelines are much the same. You still need prizes and still need winners. But you don't need announcements, entry blanks, and—for those of you who believe the limerick isn't proper—you don't need an exotic medium. Here's what I suggest. (1) Design a multi-part task that will form the substance of the contest. A set of interpretation or application questions will do the trick. (2) Have your students work in teams (three to five students each). This way, the one or two motivated students may infect a few others. I know; unlikely. (3) Have each team complete in class one part of the contest task. Collect these and use them to winnow the entrants to a manageable number of finalists. (4) The following class day, announce the finalists and have them present orally to the class the completion of the rest of the contest task. (5) Pick a winner. You can use judges or applause or your own judgment. Just pick one. There you have it.

This sort of contest has some advantages. The foremost among them is that it can involve students in high level learning in a way that is non-threatening. Of course, it can bring a little pizazz and variety as well. An artifact of this sort of contest appears in Figure 4.

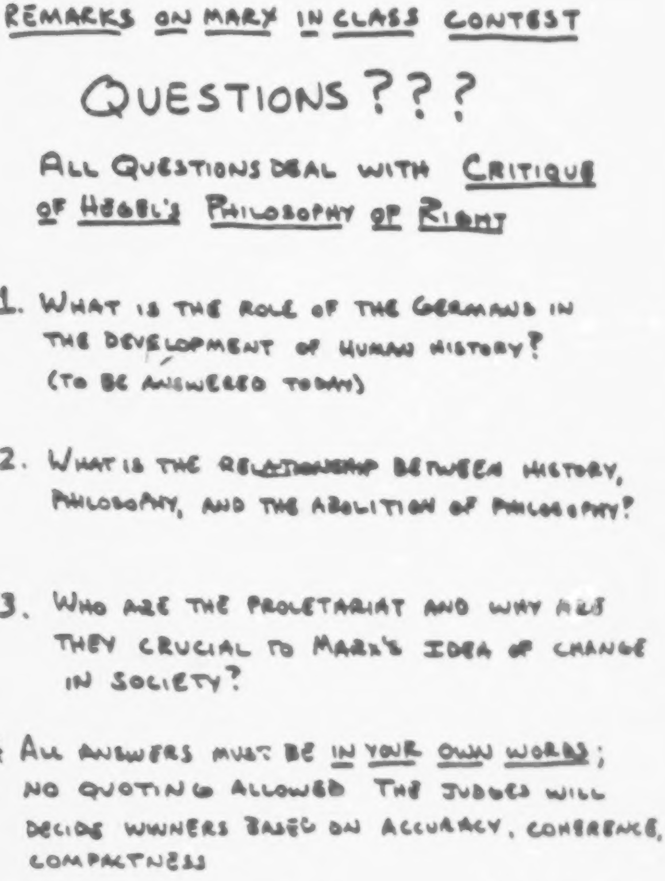
SUGGESTION 8

It is never too early to start. Your first class will do; indeed, it is a must. Don't let your students get a leg up on you the first day. Don't let them sit there while you drone on. Or, even worse, don't let them sit there until you've passed out the syllabus and then let them go. If you want your students to engage your course actively, be sure they do so on the first day. Sure, they may not yet know anything, sure, they may not have their books; sure, they may not be ready to take notes or even to listen really. They can, however, be encouraged to do something other than just sit.

The chief consideration here is that the activity be something students can do without preparation and without needing to know anything. What you want to show them is that their participation is both desired and expected. A couple of activities come to mind.

Using the discussion technique described earlier, ask students to compile a list of the ten greatest events in the history of the world. Or, the ten greatest people. If you are more adventuresome, ask each group to develop one question about anything they'd like to ask you. The content of these activities is not important. Your solicitation of and response to student-generated information will go a long way toward establishing an atmosphere that encourages active modes of learning.

Read their lists of events or people—as many as you can. Comment on some, on similarities, on who or what is



REMARKS ON MARX IN CLASS CONTEST

QUESTIONS???

ALL QUESTIONS DEAL WITH CRITIQUE OF HEGEL'S PHILOSOPHY OF RIGHT

1. WHAT IS THE ROLE OF THE GERMANS IN THE DEVELOPMENT OF HUMAN HISTORY? (TO BE ANSWERED TODAY)

2. WHAT IS THE RELATIONSHIP BETWEEN HISTORY, PHILOSOPHY, AND THE ABOLITION OF PHILOSOPHY?

3. WHO ARE THE PROLETARIAT AND WHY ARE THEY CRUCIAL TO MARX'S IDEA OF CHANGE IN SOCIETY?

* ALL ANSWERS MUST BE IN YOUR OWN WORDS; NO QUOTING ALLOWED THE JUDGES WILL DECIDE WINNERS BASED ON ACCURACY, COHERENCE, COMPACTNESS

FIGURE 4. Notes on overhead transparency for an in-class contest.

on the list and who or what is left off. And, if you must, show how what they think is important is connected to the content of the course. If you go the question route, be prepared for anything. Reading the questions in a disbelieving tone and with a shake of the head will suffice even in the stickiest situation. But try to answer as many as possible—or as many as good taste allows. You'll find, I think, that the questions will carry the day. The point, of course, is to get something from students other than blank stares. Doing it early will make it easier later. And it is more fun this way. Really.

Group Problem-Solving Exercises: An Application in Economics

Yngve Ramstad
University of Rhode Island

I often teach Intermediate Macroeconomic Theory, one of the courses economics majors are required to take. Macroeconomic theory is primarily directed to questions concerning inflation, employment, and economic growth. Currently, there are two professionally sanctioned "ways of thinking" about these issues—"Keynesian economics" and "monetarism".

Intermediate macroeconomics is of little value to our majors if they leave the course unable to "think like an economist". Accordingly, it is my principal objective in this course that, by the end of the semester, students be able to "do" both Keynesian economics and monetarism —that is, to think their way through concrete issues from either perspective.

Unfortunately, this has not proven an easily achieved goal. I am made painfully aware each semester, while reading answers to the final exam, that most of my class, while able to regurgitate skillfully memorized information, are no more capable of "doing" economics (applying economic theory to specific problems) than they were on the first day of class. In short, I am momentarily brought face to face with the fact that I have once more failed to achieve my objective in this course.

Like most college-level teachers, I am unsure what to do when confronted with this failure. Because the theories accepted by economists are outside my personal control, the course content is in large part given. Furthermore, what I know about teaching I learned by watching my own teachers. They all lectured, so I lecture. They all provided in-class examples of problem-solving via theory, so I present similar examples. They all posed insightful questions for the class, so I ask insight-provoking questions. Given my "training," what could I do when confronted with my own failure except to lecture better, provide better examples, and ask better questions? Only gradually did it begin to pierce my (thick) skull that a change in those teaching methods themselves would be necessary if I were to have any chance at all of achieving my primary objective.

THE SOLUTION?

After several semesters of vowing to try something different but, in fact, proceeding in the usual manner (peer pressure, no doubt), I last year modified my approach substantially by incorporating frequent small-group exercises into the classroom experience. Beginning at the first class meeting, even before syllabuses are passed out and roll is taken, and continuing throughout the semester, I generally proceed as follows:

1. First, I pass out a written problem (samples are attached). Each student is instructed to take five minutes to formulate individually the approach which is needed to answer the problem.
2. Students are then instructed to break into small groups (usually three per group) and to develop one written group "solution" to the problem. Depending on the difficulty of the problem, 10 to 30 minutes are allowed for this task.
3. At the conclusion of the alloted time period, one of

the groups is selected to present its answer to the class; then, a second group is asked to provide a critique of the solution. Sometimes I let the group select its own spokesperson; other times, to ensure that all ultimately have their turn at being put on the spot, I select the spokesperson.

4. Finally, after the solution and critique have been presented to the class and after other views have been solicited and discussed, I offer my ideas on how economic theory can be used to structure one's thoughts about the problem. (At last, I get to "teach"!) To the best of my ability (and this often takes enormous self-control), I refrain from saying anything substantive during the two student presentations.

Clearly, these exercises are not evaluative devices and, therefore, cannot be graded per se. Nonetheless, I consider participation to be a course requirement and link up to 10% of the grade to it. Students who participate in 90% or more of the exercises are awarded a grade on them equal to their test average for the course. For example, an 87 test average equals 8.7 on in-class exercises. For each exercise missed (beyond the 10% "grace"), one point is deducted from the grade based on test average (8.7 becomes 7.7). Non-participation can cost the student up to one letter grade (using the 90%, 80%, 70%, 60% scale). In other words, it's all stick. A potentially higher test average is the only available carrot, aside from the fact that most students appear to enjoy the activity of participating in these group problem-solving exercises far more than they do sitting still for 75 minutes listening to my lecture and passively watching others answer my "probing" questions.

RESULTS? THE JURY'S STILL OUT.

Well? Do my students now "do" economics beautifully on the final exam? Am I ecstatic over my course objective at last being attained? Hardly. I have yet to find the magic elixir. But, while it's still too early to make any definitive assessment, some preliminary observations may be of interest.

First of all, my students do seem to perform better than before on questions essentially identical in nature to ones "solved" in class by the small groups. In other words, almost all the class can answer "familiar" questions adequately; formerly, only a few were able to answer successfully questions similar to examples I worked through in lectures. Practice apparently does have an impact. From my point of view, this improvement is not a trivial gain.

Second, and perhaps more important with respect to my objective, I must reluctantly acknowledge that I detect little or no change in performance on novel questions (ones not similar in form to any solved in class). This is discouraging. At this point, I would be prone to say that with respect to general problem-solving skills, "You either got 'em or you ain't." It's too early in my career, though, to give up yet. Maybe better questions . . . (Haven't we heard this before?)

Third, students seem to enjoy class more. There's evident camaraderie that was not there before, more enthusiasm, and, yes, students pay much more attention to my explanations. (I suspect this may be the real reason for the improved test performance noted above.) In fact, they actually appear to be interested now when I explain how I would have gone about solving the assigned problem. Anyway, even though the Puritan in me recoils at the thought, maybe it's a gain in and of itself that students should enjoy coming to class to learn "hopelessly dry" economic theory.

Finally, group exercises obviously use up huge blocks of class time. This creates two problems. Less important is the matter of how the instructor can keep occupied. It hardly seems appropriate to sit there reading a newspaper. I walk around the room to make sure everyone is actually discussing the assignment, but I seldom "instruct" while groups are buzzing with activity . . . which, surprisingly, they generally are. Truthfully, there's lots of (boring) thumb-twiddling here. More important is the impact on course content. Less class time means less material covered in lectures. I've uneasily told myself that it's better to know how to "do" a little macroeconomics than to know about, but not know how to do, the macroeconomics normally considered part and parcel of this course. I remain unhappy about the loss of course content, however.

To sum up, group discussion exercises appear to have improved test performance, to have created a more satisfactory experience for the average students (they now can actually answer with confidence some of the complex analytical questions on the final), and all students appear to have more fun in the course (is this really a sin?). Unfortunately, there are costs. Not least is the fact that the top students now learn less (they, like me, can learn how to do by watching someone else and can skip all the practice). Perhaps most telling to the critic, however, is the apparent reality that real problem-solving skills (applying general principles to novel situations) may not be significantly furthered by this approach. Yet, weighing both the pros and cons, I'm likely to stick with this new approach for several more semesters.

Group Exercise No. 1

The situation.

The Humphrey-Hawkins Act of 1978 supplemented the Employment Act of 1946 by mandating a reduction in the nation's unemployment rate to 4% within five years. You are a member of the House of Representatives. Suppose Speaker Tip O'Neill, arguing that "late is better than never," urges you to vote for additional government spending in order that this goal be met.

Your task.

1. You have decided to base your vote strictly on the economic merits of Speaker O'Neill's proposal. Indicate how you would vote.
2. Carefully explain your reasoning.
3. Supplement your explanation with an appropriate diagram.

Group Exercise No. 3

The situation.

You are members of the Council of Economic Advisors. Suppose the president has just left a meeting with Milton Friedman and Walter Heller, where they offered their respective analyses of the economic consequences of a "deficit reduction plan" (raise taxes and/or reduce Federal outlays). Perplexed, the President comes to you: "Heller says the plan will cause a sharp increase in unemployment. Friedman, however, says this plan will have no effect on employment. It drives me crazy to get such contradictory advice. I know both are educated, clear-minded individuals. Can you tell me why their advice differs so much?"

Your task.

1. What would you tell the President? (Use the IS-LM framework to organize your thinking.)
2. Provide a diagram to illustrate the logic of your analysis.

Group Exercise No. 5

The situation.

You are the Chairman of the Council of Economic Advisors. You're in your office, adjacent to the Oval Office, when the President suddenly rushes in, his face flushed with excitement. "Doc," he says, "Jack Kemp was just in my office, excoriating me for permitting the Federal Reserve—as if I actually had any control over Volcker—to increase the nation's money supply too rapidly. Word for word, that $*†/&* just said to me, 'A nation cannot become richer by creating more money, just as the owner of a theater cannot increase its seating capacity by printing more tickets.' How does one respond to an idiotic statement like that? Anyway, I pretended I had to go remind Nancy of something and managed to get away for a minute. When I get back, though, I'll have to respond. What can I say to Kemp without making an ass of myself;"

Your task.

1. Develop a brief response for the President to make.
2. Develop a diagrammatic analysis to illustrate the logic underlying your analysis.

Group Exercise No. 7

The situation.

You are the President's chief economic advisor. He comes to you, deeply disturbed about the size of the deficit being forecast for the upcoming fiscal year. His instincts are that such a large deficit, adding about $150 billion to the national debt per year, has to wreak considerable damage on the economy. His political advisors, however, say "not to worry, the deficit hurts no one."

Your task.

1. Suppose the President asks you to explain carefully the economic consequences of a large budget deficit. Outline what you would tell him.
2. Supplement your explanation with (an) appropriate diagram(s).

Group Exercise No. 9

The situation.

You are members of the council of Economic Advisors. The President is under attack by business groups to make American industry more competitive (as compared to foreign firms). A group of business leaders is meeting with you, and its spokesman proposes a liberalization of investment depreciation laws, arguing such an action will be of help both to business and the general performance of the economy. The President, regrettably, remembers little he learned as an economics major at Wheaton College and has no idea whether such a claim is right or wrong.

On the pretense of having to go to the bathroom, the President, ever a quick thinker, rushes into the adjoining office where you are having your regular weekly meeting.

He nervously "requests" that you inform him what the likely macroeconomic consequences of liberalized depreciation laws would actually be. To keep his visitors from catching on (cartoonists are already having a field day with his predilection for not knowing what is going on), he must return with the answer in ten minutes.

Your task.

1. Develop the SR and LR macroeconomic consequences, *ceteris paribus*, of enacting liberalized depreciation laws. Be as specific as possible, given the short amount of time available.
2. Develop a diagrammatic analysis to illustrate the logic underlying your conclusions.

Group Exercise No. 10

The situation.

Assume that you are members of the Council of Economic Advisors. At the last minute, the President comes to you, wanting advice for a meeting with the Fed chairman. The meeting is scheduled to start in 15 minutes. The President is up for reelection next year and is obviously interested in ensuring a robust economy during the election year. He states that he has enough "rapport" with the Fed chairman to increase the growth rate of the money supply. Will this be a wise action (given his goal of reelection)? You are asked to advise him in that regard.

Your task.

1. What are the likely macroeconomic consequences of increasing the rate of growth of the money supply?
2. Develop a diagrammatic analysis which illustrates your reasoning.

Group Exercise No. 12

The situation.

During the past decade, high rates of unemployment and high rates of inflation have plagued the U.S. economy. Assume you are the President's chief economic advisor, you've been assigned the task of developing a logical, cohesive program to reduce the rate of unemployment to below the 6% level without rekindling inflationary forces.

Your task.

1. What would you tell the President to do (include any advice to the Fed)?
2. Carefully outline the reasoning underlying your advice.
3. Provide diagrams as appropriate.

NOTE TO WORKSHOP PARTICIPANTS: This question actually requires about the same analytical explanation as Group Exercise No. 1. When I point this out to students, they are able to get a sense of how much their grasp of macroeconomics has improved during the semester. (This, of course, does not imply anything about their ability to "do" economics.)

One Sentence Is Worth a Thousand: A Strategy for Improving Reading, Writing, and Thinking Skills[1]

Lois Cuddy
University of Rhode Island

I teach literature—which also means teaching how to write critical, analytical papers. Until I developed the assignment that will be presented in this paper, I was almost defeated by the quality of writing that students assumed to be acceptable, expecially for their first essays in the course. The papers were disorganized and without a clear focus (or thesis); the writing style was grammatically poor and filled with vague, incoherent sentences and what passed as paragraphs; and there was no sense of evidence to support the statements being made. Since I had not initially established a common vocabulary for my expectations and their writing deficiencies, my endless corrections and comments on their papers had little meaning to the students who therefore learned nothing for all

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This paper was originally published in April, 1985, in *The Rhode Island Reading Review*, Vol. 1, pp. 40-47. It is reprinted by permission of the Rhode Island State Council of the International Reading Association.

my time. Even individual conferences to discuss each paper were less than satisfactory in their results, though personal contact and rewrites of course led to some improvements. Then I tried the idea presented here, an assignment that addresses all the problems mentioned above, and more, and can help students write better papers in almost every course across the curriculum.

The assignment is simple, both to give and to grade: in answer to a question which I give the class with the first homework reading assignment, the student is to write a one-sentence answer and then to list three quotations from the reading to support the position presented in that thesis sentence. Obviously, this assignment can be used in any discipline, but for the purpose of this article, one of my own English classes will be used as referent.

Let us say that I am teaching a course in American literature and the reading due for the second class is Washington Irving's "Rip Van Winkle." Now we all know the plot of the story in which Rip goes up to the mountains to escape his wife and responsibilities, falls asleep for twenty years, returns home to find his wife dead and his children grown, and resumes his place in the community. That is the plot, and writing assignments should never deal with plot unless the class is on the most basic remedial level. Otherwise, the class discussions and the writing related to the literature should focus on themes and the function of such other elements as character, setting, images, and structure to reinforce the themes in the story. The same principle applies to the sentence to be done for homework. For example, the instructor writes the following assignment on the board:

> Write *one complete* sentence answering the following question: In Washington Irving's story, "Rip Van Winkle," is Rip or his wife responsible for the quality (or nature) of their marital relationship? Then *list* three quotations from the text as evidence to support your thesis statement. (Put page numbers in parentheses following each quotation.) [2]

Explain to the class that the assignment must be followed precisely—*one* sentence, not a paragraph; quotations must be correct; and so on. Answer any questions that the students have about the assignment: i.e., what you mean by "thesis statement," "evidence," and so on.

This question may appear to be simplistic and superficial, but much is involved in answering it. Since the community loves Rip and the wife is depicted as a shrew, the easiest answer would be to say that Dame Van Winkle is responsible for their unhappy relationship. After all, Dame Van Winkle is not known for her controlled temper and even dies of apoplexy from screaming at a peddlar. However, a careful reading of the text reveals that the wife has every reason to be upset about Rip's behavior because he helps all the neighbors' wives and children, neglects his own chores, lets his family go hungry, and allows his farm to deteriorate. In most people's value system, these would be valid reasons for his wife's anger. On even closer reading, we find that Irving draws Rip with considerable irony as the judgments about Rip and his wife are based on unreliable sources like the gossiping women of the village and folklore tales. Moreover, the textual evidence points out the questionable qualities and behavior patterns in each character and therefore requires serious thinking about the question posed to the class. One of the issues, then, is whether either one alone is responsible or whether each one's personality exacerbates the weakness of the other. Not only can an interesting and valuable class discussion develop when the teacher uses the homework sentences to generate exchange of ideas among students but the evidence required for the answer to this question demands that the students read very carefully indeed. They will also think more seriously about the story, the relationships, and the character of Rip than they would otherwise have done if they were only concerned with plot.

Obviously, there are any number of questions that may be asked about each piece of literature. The important point is that the question be based on the material in the course and on the reading assignment due the next class period. If your question is well chosen, this assignment will help students

1) to read more carefully.
2) to move beyond plot and into theme in their reading.
3) to synthesize the material and practice looking for the most important ideas.
4) to be prepared to defend their ideas with evidence from the text.
5) to write in complete sentences.
6) to become familiar with the idea of a thesis statement.
7) to begin to learn responsibility for basic documentation by including page numbers after each quotation.
8) to learn to focus perspective and improve coherence without being forced to make formal outlines.
9) to learn "where to begin" in writing a paper or essay exam. (Students should begin with a thesis which must be defended with evidence.)
10) to write more lucidly because their thesis, or focus, for the paper is clear. (When students know what they are writing about and what they want to say, their writing style will also be clearer).
11) to practice a style of thinking that is logical and sequential.

To be most effective, this assignment should be given as the basis for their first homework. This will require active, rather than passive, learning on the students' part, will begin to promote a coherent organization of ideas, and will establish your standards for reading and writing immediately. Also, because the students will come to class better prepared, they gain confidence about participating in the discussion while learning that no idea is wrong or irrelevant if it can be supported with evidence from the text. Furthermore, the use of this sentence/evidence exercise helps students gain access to the "mysteries" that they too often assume to be the nature of literature.

After numerous trials and experiments, I have found the following techniques and schedule make the most efficient and effective use of this assignment:

1) At the first class meeting, assign the first sentence/evidence due the next class.

2) At the second class meeting, collect the papers. During the ensuing discussion, write on the board various ways students answered the question and, under each thesis statement, list the best evidence that can be chosen from the text. When you write the material on the board, reorganize it to reinforce the logical sequence of ideas for the students. This technique gives students confidence by letting them see that you value their ideas and gives them the chance to participate in class discussion without losing track of the conversation or material for their notes. Putting the ideas on the board not only gives students the sense of their importance but also offers those people who learn more effectively through visual means a better opportunity to grasp and remember the concepts. Furthermore, when they copy the material from the board, their notes (from which they will later study for exams) frame the ideas in an organized form. As this assignment and the discussion technique are repeated during the semester, this logical ordering of concepts and evidence becomes part of their styles of thinking—at least in your course.

3) Evaluate the papers and return them on the third day. You may or may not want to grade the first assignment; you may simply want to put a + or — with comment.[3] However, briefly comment on the sentence—the validity of the idea, the grammar, and the phrasing. This establishes *your* standard for their writing and will make them aware of how clearly they express their ideas (this will be an advantage to you and the students when they write the formal paper). Then look at whether each piece of evidence does, in fact, relate to the thesis statement and whether the evidence chosen is the best material in the text to support that statement. As the students become more proficient with

this task, the time involved in correcting is greatly reduced.

4) Any error in writing or logic in choosing the best evidence to support the thesis as it is phrased requires revision which may be done on the same paper so that the instructor has the original and the revision for quick and easy comparison. Revisions are to be passed back to you at the beginning of class 4. Correct them again, and you are ready to give the next assignment for another piece of literature in the course.

This sounds like a long, involved process, but it is really very easy, and this sequence of assignment and revision must be followed from the beginning of your course. Thereafter, each assignment will be graded[4] and any serious errors should be corrected by the student.[5] During this process, explain how this assignment relates to how you want papers, essays, or lab reports organized: thesis statement will be part of the introductory paragraph, each piece of "evidence" will be part of the body of the paper and will often determine the "topic" of each paragraph, and then a paragraph of conclusion is added at the end. Outline this material on the board, i.e.:

I. Introductory paragraph—includes thesis statement

II. Body of the paper—includes evidence as part of subsequent paragraphs[6]

III. Paragraph of conclusion—indicates the significance or implications of the thesis, rather than just a summary of what has already been said.

You may give this one-sentence assignment, which is quick and easy to correct, any number of times during the semester. It can be used as quiz grades, both for homework and in-class assignments. This may also be used as the basis for small group discussion: the students come into class with their sentence and evidence, and you break the class into small groups so the students may discuss the quality and validity of each other's thesis. This technique also improves their discrimination about the appropriateness of particular ideas and the best evidence to use in defending their interpretations. Any number of variations for class activities may emerge from this simple thesis statement assignment (debates, devising a thesis by group, defending an alternate thesis, and so on).

However helpful I have found this technique to be, it does not solve all problems. In fact, this assignment is only effective in improving student papers if it is repeated several times for separate works before the first paper is written. Even then it does not guarantee all perfect essays, but it does promise that most of the papers will be more organized and therefore more lucid and coherent than they would be if you had not prepared the students. I would also suggest that the first couple of papers be very short (2 pages), that they be revised with the grades raised by the revision, and that the first papers be written in response to a question given by the instructor, much as the homework assignment is framed. This gives the students a sense of continuity between the homework and their writing of papers and also helps to give them some direction and confidence in their initial efforts.

How long it takes for a class to reach the point of writing a five-page essay or a longer research paper, for example, will depend considerably on the educational level and motivation of the students in a particular class. In junior high or high school classes, you may want to use this sentence technique as the first step in an evolving process leading up to a complete essay. For example, after giving students practice at writing thesis statements with evidence, have them expand a thesis sentence into an introductory paragraph which they revise until it is acceptable. One paragraph is much easier to grade than a long essay, yet students are getting practice at writing sentences, coherent paragraphs, and the introduction for a longer essay. Next, have them add a second paragraph incorporating a topic sentence related to the thesis and one quotation used as supporting evidence for their thesis. (You might want them to underline their thesis at first so that they keep their focus clearly in mind.) This process may be repeated several times for different literary pieces, each time before the literature is discussed in class. Then have them write a complete two-page essay on a story or poem that may be discussed in class on the day the essay is due. They should be comfortable writing an introduction and other paragraphs, so the new challenge is with the paragraph of conclusion. By working with very short assignments and only gradually expanding the length of the essays, the instructor is not overwhelmed by long, badly written material, can explain errors more easily to students, can correct the papers more carefully and systematically, can require revisions for every writing effort, and can help students with serious reading and writing deficits to gain some confidence in self-expression and to improve through constant practice. Revisions are essential because the rewrite forces the student to address his/her own special problems, recognize the improvement resulting from further correction, and accept the revision process as part of the writing process. Since revisions are so much easier to grade, they also offer teachers relief from the endless hours of corrections while still giving students practice and additional grades.

Even when students are writing complete essays, I repeat the sentence/evidence assignment throughout the semester to reinforce the cognitive skills required and to ensure that the homework reading is done carefully. This offers students the opportunity to earn grades on a task that they have learned to do well, and it certainly enlivens class discussion.

I am convinced that one sentence, if used effectively, can be of considerable value to both teachers and students. If all English teachers from the seventh grade on used this method[7]—or one that is similar and designed to achieve the same goals—then students would recognize a consistency of approach and purpose in education, their organizational and writing skills would be reinforced in every class, the quality of their reading would be improved, and their literary orientation would be toward themes and structures, rather than simple plot. While all students can benefit from this approach, the college-bound students would be especially enriched as they look to an easier and more successful transition to college work.

NOTES

[1] The concept and techniques in this paper were first presented at teaching workshops, sponsored by the Instructional Development Program and the Lilly Endowment, at the University of Rhode Island (Spring and Fall, 1981). Evolving versions of the paper were presented at the Lilly Teaching Awards Conference, Virginia (April 1981), at the Second New England Conference on Teaching Students to Think, University of Massachusetts, Amherst (November 1981), and at recent workshops at the University of Rhode Island. I am grateful to the faculty whose questions and suggestions at these sessions helped to improve this teaching method. I am also indebted to Professor Sue Vaughn of the University of Rhode Island Writing Program for her incisive comments and corrections of the present text.

[2] The question may be answered in numerous ways. For example: 1)Dame Van Winkle is responsible for the problems in the marriage because she was a mean and unpleasant woman. 2) Rip is responsible for the unhappy marriage because he ignored his family and let them go hungry. 3) Rip is responsible for the trouble in his marriage because he cared more about being admired by the people in his village than about accepting responsibility for supporting his family. 4) Since Dame Van Winkle seemed to make life miserable with her bad temper and Rip was too irresponsible and selfish to take care of his family, both of them apparently contributed to the problems in the marriage. 5) Because the judgments about Rip and his wife are based on unreliable sources like the village gossips and folk tales, we cannot know the truth and therefore cannot assign total responsibility to either one of the characters.

[3] The instructor may want to use the first assignment simply for practice, thereby giving the students some idea about how to do this exercise. Thus, the first homework assignment may not be collected but may simply prepare students for a lively class discussion. Thus, the teacher on the second day may discuss the statements and evidence that the students wrote but then give another question, due the third day, for the same story and on a theme not yet discussed in class. This second homework task of sentence and evidence can then be collected on the third day, graded overnight, then returned on the fourth day of class.

[4] Criteria for grading may be based initially on the grammatical correctness and relevance of the sentence to the question being asked and on the appropriateness of the evidence for the position taken in the thesis sentence. As the year progresses, just as your questions will gradually require more complex thinking and sentence structure for answers, your assessment of the quality of the sentence may also be based on the sophistication of the reading and interpretation of the piece of literature.

[5] An effective grading strategy for me is to raise the original grade by averaging that grade with the revision for the first two homework assignments. Thereafter, all corrections are required, but the grade is not raised. If the student does not correct the assignment when requested to do so, the student gets a zero for the whole assignment. My rationale is that the revision is crucial in teaching students better thinking and writing habits. Eventually almost no revisions will be necessary, and students will experience the pleasure of competence and will enjoy doing this assignment.

[6] As students begin to write subsequent paragraphs, the instructor must indicate the importance of a topic sentence for each paragraph and of effective transitions between paragraphs.

[7] If all classes in humanities, languages, social sciences, and physical sciences, as well as English, used a similar method for reading and writing, such reinforcement and interdisciplinary approach to education would have numerous advantages for cognitive development in students.

Techniques for Teaching Scientific Reasoning and Problem Solving

James L. Fasching
Bette LaSere Erickson
University of Rhode Island

Several years ago, the frustrations in teaching freshman chemistry courses had tested the limits of chemistry faculty. Like most introductory science courses, the freshman chemistry courses promised to introduce students to scientific methods of investigation and claimed to stress scientific reasoning and problem-solving. Like most (we suspect) introductory science courses, ours were not making good on these promises.

To be sure, students who completed freshman chemistry knew and could recall important information. Most of them could perform calculations and solve problems using the material they'd studied . . . so long as the problem explicitly stated or strongly implied which concepts, theories, and formulae were to be used. However, if we posed more complex problems—problems which required application of two or three concepts or problems which were not "set up" for solving—very few students knew where to begin, much less how to work through these problems. In the laboratory, students seemed lost if they were not given step-by-step directions for experiments and paralyzed if asked, for example, "to design and conduct a series of experiments for the determination of phosphate in various detergents."

Of course, none of this should have surprised us, since the teaching methods and examinations in freshman chemistry emphasized precisely those competencies which students developed—the ability to recall information and to use it as directed in solving problems. Faculty assigned readings, gave lectures, performed experiments . . . and students memorized. To be sure, the questions posed in class, at the end of each chapter of the text, and on exams asked students to apply their knowledge in solving problems. However, these questions typically asked students to apply only a single concept and the problems were usually highly structured. Students were getting little practice in wrestling with problems which required the application of several concepts or which asked them to decide what information was needed in order to solve the problems.

In 1979, we began revising the section of introductory chemistry offered to chemistry majors and chemical engineers in order to make it more consistent with its claims to stress scientific reasoning, problem-solving, and investigating. Yes, the course continues to include readings, lectures, and demonstrations that introduce and explain course material. However, because students need to practice their thinking skills, the course now includes many small group discussion exercises and a group research project.

SMALL GROUP DISCUSSION EXERCISES

Students in this course now spend at least half of each 75-minute class meeting in small groups (5-6 students) discussing problems. Sometimes, the problems are presented in written form. Other times, students watch a demonstration or perform an experiment in their groups and record their observations. They are then asked to use what they've learned to explain their observations or formulate hypotheses or propose additional experiments to test alternative hypotheses.

In one class, for example, students are divided into groups and given the following task:

> Dissolve the ammonium chloride in the beaker that is given to your group with water. Place a few drops of water on the damp sponge and set the beaker on it. Discuss and explain your observations using thermodynamic and chemical reaction theories.

As students perform the experiment and discuss their observations, the instructor moves from group to group, noting each group's progress and offering hints when students need them. After 20 minutes or so, class reconvenes and the groups are asked to report. The remaining time is used to compare, contrast, and discuss the strategies and explanations which different groups considered.

A session on redox reactions illustrates a variation of the same instructional technique. Students watch a series of experiments in which various combinations of three unknown solutions are mixed. After each experiment, students' observations of color changes and elapsed time for the reactions are recorded on the board. After four or five of these experiments, students break into small groups and try to formulate hypotheses to explain these experimental data. Quickly, students begin to speculate, "I wonder what happens if you leave out reagent A or reagent B?" After 10 or 15 minutes, most groups ask for additional experiments. Then, it's back to the small groups for more discussion. Eventually, at least one group comes up with something resembling an hypothesis, and the class is asked to propose additional experiments to test the hypothesis. By now, students are eager to see their hypotheses verified, pay rapt attention as these experiments are performed, and let out cheers when their hypotheses are confirmed. While such activities were introduced primarily in order to give students practice in scientific reasoning, they also bring some of the drama and spirit of scientific investigation into class.

GROUP RESEARCH PROJECTS

Although the small group discussion activities provide practice for particular scientific reasoning skills, they do not typically require students to practice the combinations of skills involved in scientific research. Thus, participation in a group research project is required in the course. Early in the semester, students are assigned to groups of five or six members. A student leader is appointed to organize the group, direct its activities, and report its progress. Each group must define a chemical problem or question, design an experimental procedure, conduct the experiment(s), and prepare both a written and an oral presentation of the group's research.

For most freshmen, this project represents their first attempt to conduct a scientific study from start to finish. Initially, students find the assignment ambiguous, unstructured, and generally unsettling; they need considerable guidance and frequent reassurances. In order to provide some initial direction, they are given a list of 35-40 suggestions which include analytical methods such as "determination of phosphate in detergent," "assay of aspirin in various medical preparations," "ion-exchange capacity of water softeners," "comparison of volumetric analysis versus gravimetric analysis."

In the sixth week of the course, each group must submit a written definition of the question or problem it intends to investigate. The following samples of "proposals" were submitted by students in 1983 and illustrate the types of problems students define:

> Determine the phosphate distribution down the Pawcatuck River. We will attempt to generate hypotheses to explain any differences in the distribution.
>
> Is there a loss of calcium when using skim milk as opposed to whole milk? If so, what is that loss?
>
> What amount of protein is available for consumption in one week at the dining hall? How does this compare to the suggested level of protein intake?

> Is spring water worth paying for? Are there really benefits to drinking spring water or mineral water over tap water? Ions to be determined are: F, Cl, Br, I, Na, K, Mg, Ca.

These problem definitions are reviewed and returned to students with questions, suggestions, and—usually—requests for revisions. Once the groups have written acceptable definitions of their research problems, each group is asked to submit an outline of the experimental procedure to be used. Again, their proposals are reviewed and returned with questions, suggestions, and requests for revisions. Thus, by the time students begin work in the laboratory, they've already been assured that their topics and experimental procedures are acceptable, that their projects are significant, and that they are manageable in the time available.

The last six scheduled laboratory meetings are reserved for working on the group research projects. This required dropping some of the standard laboratory experiments conventionally required in freshman chemistry, but we were not convinced that those experiments were teaching students much that was worthwhile anyway. Still, students spend many additional hours in the lab; most of these projects require 30-40 hours from each student. They complain, of course, but not with much fervor.

RESULTS

Although evidence of the impacts of these instructional techniques on student learning remains largely impressionistic, initial attempts to determine their effects have been encouraging (Fasching and Erickson, in press). Most students are able to handle the simple and the moderately difficult application problems included on course exams. Although not many students completely solve the most complex problems, about half show signs that they know how to approach these problems and are able to provide at least partially correct solutions. Before revising the course, very few freshman chemistry students demonstrated the ability to tackle such problems. The group research projects have been consistently excellent. Although these projects are intended to provide an "introduction" to scientific research, we think some freshman projects have been comparable in quality to research performed by first-year graduate students in chemistry.

Student evaluations of the course have been easier to monitor systematically and show dramatic improvements on almost every item. In 1979, only 40% of the students rated the course better than satisfactory, and 21% rated it below average. In 1984, 77% of the students rated the course "excellent" or "good," and no students rated the course less than satisfactory. Student responses to more specific questions followed similar patterns.

These results have been encouraging. Yet, five years is a long time to work on improving a course. Thus, the number of students (20-25% each semester) who rate the course "satisfactory" has been frustrating, especially when one consults their explanations of why they rated the course as they did. The following sample of comments from students' evaluations reveals some recurring ambiguities and tensions:

> I know that the instructor's intent is there and I realize that he is trying to teach us to think critically about the problems we are asked, but. . .it doesn't seem to tie in with what we should be learning as prescribed by the book. . .
>
> The course makes each student think and reason out solutions which can be compared with classmates'. This is necessary. But more lectures would help. There aren't many straight lectures.
>
> I like the concept of group learning. I also like chemistry. I like the labs, although they are too demanding. I don't feel I have the background to do some of the things I am asked. There are not enough notes. I do not know what is expected. I find it difficult to prepare for our tests. I think we should go over homework in class. . .
>
> The facts in sciences are extremely important and should be learned with diligence. Basic equations and formulas used in solving them are essential tools for a bright future in a more detailed science. CHEM 192, however, was

> instructed in a more relaxed style than I liked because I ended up not retaining knowledge which is important and necessary for the future. CHEM 192 should be instructed using many sound examples and stressing the basic facts and solid ways of finding the correct answers. . .keep precise and basic sciences more in line with a straightforward factual approach and try to give concrete examples and questions on the material.
>
> The teacher is good in his field. He encourages us. But he doesn't define things. Thinking is fine, but learning is what I'm here for.

"Thinking is fine, but learning is what I'm here for." Indeed. Often, students sound as if they define teaching and learning along the following lines: teaching is lecturing and assigning textbook chapters; learning is memorizing what the teacher and the text have said. Thinking is an extra—sometimes interesting, but not the main business. Clearly, this course is based on different assumptions about what constitutes teaching and learning, and students' comments acknowledge those differences. Yet, students seem to hold onto their definitions of teaching and learning—and use them to guide their studying—with surprising tenacity. Why?

We suspect that Perry's (1970) findings about intellectual development among college students offer some clues. According to Perry, students' views of knowledge, their expectations of instructors, and their perceptions of their responsibilities as students change dramatically during the college years. Students in the earliest developmental positions, Dualism, view knowledge as an accumulation of facts, right answers, and truths; all else belongs in a domain with wrong answers, falsehood, and "mere opinion or theory." Professors are viewed as Authorities, and their job is to present the facts to students . . . as many as possible in the time available. Students are the eager recipients of this information, which they diligently record in their notes, doggedly commit to memory, and dutifully write down as answers to examination questions.

If one looks at students' comments about this course in light of these characteristics, several phrases stand out in their evaluations: "It doesn't seem to tie in with what we should be learning as prescribed by the book"; "More lectures would help. There aren't many straight lectures"; "There are not enough notes"; "CHEM 192 should be instructed using many sound examples and stressing the basic facts and solid ways of finding the correct answers . . ." Their evaluations are filled with recommendations one might make if one viewed knowledge as right and wrong answers, if one regarded instructors and textbooks as Authorities, if one viewed learning as memorizing the right answers which Authorities present in lectures and readings . . . , if one were in Dualistic positions.

If it turns out that the 20% or so who rate the course only "satisfactory" are in positions of Dualism, then the assumptions which have guided our efforts to strengthen the course are probably not sufficient. We have assumed that students would develop their scientific reasoning and problem-solving skills if we provided enough opportunities for them to practice those skills. Each year we have increased the number and variety of practice exercises, and we're currently working on a program of computer-assisted practice. We're convinced these activities have benefitted many students. However, students who long for "basic facts" and "solid ways of finding the correct answers" are likely to find this course frustrating, no matter how many practice exercises are available. If we are to reach these students, then we'll need to find ways to support them so that they will risk a transformation in the way they view science and learning.

In other words, there's more to be done in this course.

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